VPDES PERMIT PROGRAM FACT SHEET

This document gives pertinent information concerning a proposed VPDES permitting action for the VPDES permit listed below. This permit is being processed as a major industrial permit. The industrial discharges result from the operation of an electric generating plant which consists of a 585 Megawatt coal and biomass fired generating plant and its associated facilities. The wastewater discharges result primarily from process wastewater, ash landfill leachate, coal pile runoff and cooling tower blow down.

The permit process consists of: developing permit limitations and other requirements based upon the Virginia Water Control Law, VPDES permit regulations (9 VAC 25-31), EPA Steam Electric Effluent Guidelines and the Virginia State Water Quality Standards.

1. Facility Name and Address: SIC Code: 4911

Dominion Virginia Power
Virginia City Hybrid Energy Center
3425 Russell Creek Road
St. Paul, VA 24283

2. VPDES Permit No: VA0092746

3. Owner Contact:

C.D. Holley, Vice President
Fossil and Hydro Operations
Dominion Virginia Power
5000 Dominion Boulevard
Glen Allen, VA 23060
Telephone No.: (804) 273-3051

4. Facility Contact:

Geoffrey A. Hensley, Environmental Supervisor
(geoffrey.a.hensley@dom.com)
Virginia City Hybrid Energy Center
3425 Russell Creek Road
St. Paul, VA 24283
Telephone No.: (276) 762-2614

5. Permit Processing:

Application Received:	December 14, 2012
Application Fee Paid:	December 19, 2012
Application Complete:	February 3, 2013
Draft Permit Date:	June 24, 2013
Permit Effective Date:	August 30, 2013
Permit Drafted by:	Mark S. Trent
DEQ Regional Office:	Southwest Regional Office

Date: August 28, 2013

Reviewed by: _____ Date: _____

Comment Period From: June 25, 2013 To: July 26, 2013

6. Receiving Waters Classifications:

Receiving Stream:	Clinch River
Basin:	Tennessee - Big Sandy
Subbasin:	Clinch River
Section:	2a
Class:	IV
Special Standards:	pws
Stream Segment:	VAS-P09R
Rivermile:	6BCLN253.22
Tidal?	No
On 303(d) list?	No

7. Licensed Operator Requirements: Class II

In accordance with the provisions of the VPDES regulation (9 VAC 25-31-200.C), the regulations of the Board of Waterworks and Wastewater Work Operators (18 VAC 160-20-10) and the recommendations of DEQ Guidance Memorandum No. 07-2012, the facility is required to employ or contract the services of a licensed Class II waste water treatment plant operator.

8. Reliability Class: NA

9. Permit Characterization:

(X) Private ( ) Federal ( ) State ( ) POTW
( ) Possible Interstate Effect
( ) Interim Limits in Other Document

10. Location Description:

The Virginia City Hybrid Energy Center is located adjacent to Route 58 in Wise County, VA, near the town of St. Paul. However, the discharge from the facility is directed to the Clinch River at a location adjacent to the St. Paul sewage treatment plant. A location map is included as **Fact Sheet Attachment A**.

Name of Topo: St. Paul, VA 7.5' Quadrangle

A. Plant Location: Latitude: N 36 54' 55"; Longitude: W 82 20' 22"

B. Discharge Location: Latitude: N 36 54' 02"; Longitude: W 82 19' 05"

11. Facility Description:

The Virginia City Hybrid Energy Center (VCHEC) is a 585 Mega-Watt coal fired steam electric generation facility located near St. Paul, Virginia. The operation consists of a power generation facility, materials handling areas (i.e. coal, biomass products and limestone) and a solid waste management facility (i.e. ash landfill). The facility began operation on July 10, 2012, and initially discharged its wastewater to the Town of St. Paul system

under an Industrial Use Permit (2010-1) issued by the town. This permit action intends to provide individual VPDES permit authorization to Dominion Virginia Power for the existing wastewater source in its existing discharge location.

The facility is designed to use run-of mine coal, biomass (wood products) and reclaimed waste coal or "gob" as fuel sources to operate steam turbines which power generators that produce electricity. The furnaces use circulating fluidized bed technology where a sulpher absorbing chemical (i.e. ground limestone) is incorporated in the combustion chamber to meet emmission standards without using external scrubbers. The facility also uses air cooled condensers to cool the return boiler water, and a small cooling tower to cool equipment in the boiler building. The air cooled condensers were selected during the design phase of the plant to minimize water usage and to minimize potential wastewater discharges at the facility. Additionally, extensive wastewater reuse is incorporated in the design to further minimize water usage and minimize potential discharges.

12. Wastewater Sources Description:

The permit application identified the following sources of wastewater at the plant: cooling tower blowdown; oil water separator discharge; water treatment building sump; clearwater pump recycling; ash fill leachate pond; reclaim, demineralization and makeup water tank and overflow drains; ultrafilter process reject water; wastewater treatment building drains and; reclaim water recycling. The following is a description of the primary sources of wastewater which are directed to the wastewater treatment system:

A. **Cooling Tower Blowdown** – The facility utilizes a small cooling tower to aid in cooling equipment used in the boiler building. The water within the cooling tower system, known as Auxiliary Cooling Water (ACW), is used to cool a closed-loop cooling system, known as Closed Cooling Water (CCW), through a series of heat exchangers. The CCW subsequently cools the equipment. This configuration is necessary due to the high water quality required for contact with the equipment to be cooled. Feed water for the ACW system is estimated at 65 gpm and supplied from the Makeup Water system (post ultrafiltration). Water is discharged (blowdown) from the ACW system to maintain water quality and prevent cycling up of contaminants. Blowdown is estimated as a continuous **18 gpm** and is directed to the Wastewater Treatment system. An estimated 47 gpm of water is lost to evaporation from the ACW.

B. **Boiler Blowdown** - Each of the two boilers has an air cooled heat exchanger where large fans direct cooling air over the air cooled condensers. The airflow removes excess heat from the boiler water prior to its return to the boiler. Although the system is a closed closed-circuit design, a certain amount of water must be discharged or "blown-down" to maintain proper water quality. Makeup water for the system is supplied from the ultra-filtration treatment system, and any water discharged from this system is directed into the oil water separator.

C. **Oil Water Separator Discharge** – An oil water separator (OWS) is located adjacent to the powerhouse and wastewater treatment building and receives potential discharges from floor sumps in the powerhouse and from boiler water blowdown. The OWS also receives any rainfall that collects in the secondary containment from transformer stations and the fuel oil storage facility. The OWS is intended to intercept and collect any lubricants or other oils that are released in the system. The OWS is a prefabricated commercial OWS (PS International Model PS-34000-DE-J) with a rated capacity of 34,100 gallons. The OWS is designed to produce an effluent with a concentration of 15 ppm or less of free oil. Collected product from the system is pumped from the separator and removed from the site by a waste oil disposal contractor. The OWS is fitted with an alarm system to indicate the level oil. The OWS discharge is estimated to produce a net approximately **262 gpm**.

D. **Leachate Pond** – The Curley Hollow Solid Waste Management Facility is a landfill area adjacent to the plant site that is used for the ultimate disposal of all combustion byproducts (i.e. ash) generated at the plant site. The SWMF uses a liner system constructed in accordance with the Virginia Solid Waste Management Regulations (9 VAC 20-90) which isolates the waste material from adjacent surface and groundwater resources. The leacheate collection system, and its multi-layered liner system is designed to contain the waste and collect all water which either comes into contact with the active surface of the facility, or percolates through the waste. These contact wastewater sources are then directed to a lined leacheate collection pond at the base of the landfill. The capacity of the pond is approximately 22.5 million gallons. Although the amount of water collected in the pond varies with rainfall, the application estimates that the average flow from the system is approximately **119 gpm**.

E. **Ultrafilter Process Reject Water** - Source water at the facility is provided by municipal water sources operated by the Town of St. Paul and the Wise County Public Service Authority. Although the source waters are high quality sources, the water must be further treated to maintain the quality necessary for the process requirements. The ultrafiltration unit is the first step in the water treatment process. The ultra filtration unit is a semi-permeable membrane filter device which continually produces a reject water to flush away the constituents too large to pass through membrane. In addition, periodically (i.e. 1/week) the ultrafilter treatment system is cleaned with either a citric acid solution or a sodium hypochlorite solution. During this clean-in-place process, the filtration system is taken offline, and the raw water side of the filter is treated with either the acid solution or the chlorine solution. After sufficient contact, the solution is discharged to the wastewater treatment system. The cleaning process results in a batch discharge of approximately 3500 to 5000 gallons of wastewater per cleaning. The application estimates that the average flow from this process is approximately **31 gpm.**

F. **Reverse Osmosis –** Water from the Ultrafiltration unit must be further treated through a water treatment system of filtration, reverse osmosis and ion exchange in order to meet the stringent water quality requirements of the boiler water. The reverse osmosis system also produces a continuous reject water of constituents that do not pass through the membrane. The banks of reverse osmosis filters are cleaned approximately once per year with a citric acid solution. The cleaning process produces approximately 600 gallons of wastewater which is directed back into the wastewater treatment system. The application estimates that the average flow of wastewater from this process is approximately **30 gpm.**

G. **Coal and Limestone Runoff –** All surface water runoff from the coal storage and handling area and the limestone storage and handling area are collected in a lined basin and pumped to the WWTP headworks for treatment. The discharges to the system are variable based upon rainfall, and are transferred in batch discharges after visual inspection of the basin contents.

All sanitary wastewater (domestic sewage) generated from the facility is directed to the Town of St. Paul Aerated Lagoon WWTP, and is conveyed to the municipal sewer plant in a separate piping system.

A schematic diagram of the water flow through the facility is included as **Fact Sheet Attachment B**

13. Wastewater Treatment System:

VCHEC has an onsite wastewater treatment system which receives all the wastewater described in Item 12.A through 12.G above, as well as all other minor incidental industrial wastewater produced at the plant such as: the water treatment building sump; clearwater pump recycling; reclaim, demineralization and makeup water tank overflow and drains; wastewater treatment building equipment drains and floor drains; and reclaim water recycling. The wastewater treatment system is designed to adjust pH, reduce hardness by removing dissolved

materials, and remove suspended solids from the influent wastewater. The system consists of the following processes and or components:

A. **Wastewater Treatment Basin** – All wastewater is initially directed to the wastewater treatment basin at the head of the plant. The wastewater treatment basin is divided into four smaller basins which are interconnected by large diameter piping. Each of the four basins has a capacity of 22,500 gallons, providing a total combined capacity of approximately 90,000 gallons. The basins serve as an equalization basin which receives, equalizes and mixes all contributing flow.

B. **Ferric Chloride Feed System** – Wastewater is pumped from the wastewater treatment basins to the sequential treatment process. The ferric chloride solution (identified as GE KLARAID CPD1360) is injected into the wastewater stream as it is pumped from the wastewater treatment basin to achieve a target concentration of approximately 40ppm. The ferric chloride solution serves as a coagulant to assist in the precipitation of solids later in the treatment process. The liquid ferric chloride solution is received and stored in totes and is dispensed via a liquid injection pump system.

C. **CO_2 Reaction Tanks** – The coagulant treated water is then transferred to two parallel carbon dioxide (CO_2) reaction tanks where CO_2 is injected into the wastewater using gas diffusers. The CO_2 reduces the pH of the water which promotes the precipitation of solids in the wastewater. The adjustment is intended to lower the pH of the mixture to a neutral range. A mechanical mixer in each of the CO_2 reaction tanks ensure the suspension of the solids so that the pH adjusted mix can be transferred to the next stage in the treatment process. The CO_2 is stored in a large storage tank adjacent to the building and is delivered in bulk by industrial gas suppliers.

D. **Soda Ash Silo** – Soda ash (i.e. sodium carbonate) is utilized in the water treatment process to adjust the pH of the treated water. The material is stored in bulk in the soda ash silo which is located inside the wastewater treatment building. The soda ash is delivered to the site in bulk trucks which transfer the material using an enclosed pneumatic piping system. It is dispensed to a mixer and the resulting slurry is injected into the treatment system in the draft tube of the clairifiers.

E. **Wastewater Clarifiers** – The wastewater treatment system has two parallel clarifiers intended to allow gravity settling of the wastewater. Water from the CO_2 reaction tanks is directed to a center draft tube in the clarifier where it is forced upward by an impeller. A soda ash solution is injected into the draft tube to raise the pH of the water mixture to further promote removal of the dissolved solids. A polymer flocculent (identified as GE POLYFLOC AE1702) is also injected into the draft tube inlet to the clarifier. The ferric chloride coagulant and the polymer flocculent promote the flocculation of the suspended solid materials and the resulting "floc" settles to the bottom of the tank. Each clarifier contains a "rake" system on the floor of the vessel which constantly moves the settled material to a center underflow drain for removal as sludge. The precipitated sludge is removed periodically by pumping to the Sludge Storage Tank. The supernate from the clairifiers passes across an overflow weir and the final treated effluent is directed to a Clear Well Tank.

F. **Sludge Storage Tank** – The underflow from the clarifiers is directed to a sludge storage tank which is equipped with mixers and a sludge forwarding pumping system to keep the solids in suspension. The sludge is used as a wetting agent in the ash conditioning system in the ash silo and is ultimately placed in the Curley Hollow Solid Waste Management facility.

G. **Clearwell Tank** – The supernate from the clarifiers is directed to a clearwell for collection and storage prior to its transfer to the Reclaim Water Storage tank. Prior to being discharged to the clearwell, the clarified water is treated as necessary with CO2 to maintain a neutral pH. Three parallel reclaim water pumps are used to transfer the clearwell contents to the Reclaim Water Storage Tank.

All of the components of the wastewater treatment system are contained within the Wastewater Treatment Building located adjacent to the powerhouse. The building contains floor drains which drain to a sump which is ultimately directed back into the wastewater treatment basins at the head of the WWTP.

A schematic diagram of the wastewater treatment system is included as **Fact Sheet Attachment C**.

14. Internal Wastewater Recycling and Reuse:

All treated wastewater is directed to the Reclaim Water System, and the wastewater is recycled and used within the plant for several internal processes. The Reclaim Water System consists of pumps, strainers, valves, piping and a one million gallon reclaim water holding tank used to store and convey recycled water for its potential re-use. The internal processes that utilize the reclaim water are:

A. **Dry Flue Gas Scrubber** - The combustion system on the boiler system utilizes a "dry scrubber system" to minimize the production of acid gases (e.g. SO_2). This dry flue gas desulfurization process consists of a spray dryer system to inject a lime slurry into the flue gas. In this system a small amount of water is used to transport the lime in a slurry, but unlike wet scrubber systems, the amount is not sufficient to saturate the flue gas stream. Consequently the added water is evaporated and does not create a wastewater stream or steam plume. The application indicated that this process uses approximately 120 gallons per minute from the Reclaim Water System. Since this water is all evaporated in the flue gas, no wastewater streams are created.

B. **Coal Dust Suppression** - Water from the Reclaim Water System is also sprayed onto the coal pile and onto the coal transfer locations (i.e. belt lines) to assist in dust supression. The application indicated that this process uses approximately 5 gallons per minute from the Reclaim Water System. Since this water is all absorbed on to the surface of the coal which is ultimately burned in the combustion chamber no wastewater streams are created.

C. **Ash Conditioning** – Combustion of the fuels (coal and biomass) creates two types of ash. A coarse ash product is collected in the combustion chamber, and a lighter "fly ash" product is collected from the filter fabric bag house. Each are collected and pneumatically directed into ash holding silos adjacent to the powerhouse. A small amout of water is added to the ash in a pugmill at the base of the ash silos. The addition of water is necessary to "condition" the ash so it can be transferred to off-road haulers and transported to the The Curley Hollow Solid Waste Management facility. The application indicated that this process uses approximately 125 gallons per minute from the Reclaim Water System and approximately 15 gallons per minute from the Wastewater Treatment System sludge (Item 13.F). Since this water is all mixed with the ash which is ultimately placed in the landfill no wastewater streams are created.

In addition, wastewater may be directed to the leacheate pond for storage by backflowing treated water from the reclaim water storage tank through the leacheate pond discharge line back into the pond. This gives the operator additional flexability in managing potential discharges from the site.

When the station is operating, demand for reclaim water in these systems is often greater than the supply of treated wastewater, and additional clean water from the make-up water storage tank is directed to the reclaim system for use in the reuse processes. However, when the generation systems are not operating, or when wastewater production exceeds demand, excess water from the reclaim system is discharged from the site to the Clinch River though the outfall system proposed to be authorized by this permit.

15. Initial Discharge Authorization:

Upon construction of the facility, the discharges of the industrial wastewater were initially directed to the Town of St. Paul and authorized under the VPDES permit (VA0026221) serving the St. Paul Aerated Lagoon WWTP. The municipal wastewater treatment system provided no additional treatment but the wastewater sources were combined in a single common outfall owned and operated by the Town of St. Paul.

The Town of St. Paul set the discharge requirements for the indirect discharges using an "Industrial User Permit" in accordance with their sewer use ordinance and their pre-treatment program. The permit established limits upon the quantity and quality of the discharge. The IUP set limits upon the following two discharge locations: IUP-001 – Concrete Manhole west of the St. Paul POTW and; IUP-002 – Auxiliary Cooling Tower Blowdown. Outfall IUP-001 is the combined total flow of all industrial wastewater from the plant, and outfall IUP-002 is the cooling water blowdown component of the discharge.

The IUP limited the total volume of discharge from the facility to 792,000 gallons per day. The permit also limited the following parameters at each outfall:

A. IUP Outfall 001:

Parameter	Monthly Average	Daily Maximum
BOD5	30 mg/l	45 mg/l
TSS	30 mg/l	45 mg/l
Ammonia	0.9 mg/l	1.2 mg/l
Sulfate	1,980 mg/l	n/a
Total Dissolved Solids	2,980 mg/l	n/a
Mercury	0.20 ug/l	2.6 ug/l
Total Copper	36.2 ug/l	38.9 ug/l
Total Cyanide	14.9 ug/l	41.3 ug/l

B. IUP Outfall 002:

Parameter	Monthly Average	Daily Maximum
Total Chromium	0.2 mg/l	0.3 mg/l
Total Zinc	1.0 mg/l	1.2 mg/l

The existing discharge permit for the Town of St. Paul (VA0026221) includes effluent limitations and monitoring requirements for the following control points: **Outfall 001** is the final discharge from the St. Paul wastewater treatment facilities AND includes the industrial wastewater component from the VCHEC facility; **Outfall 102** is an internal outfall which consists solely of the discharge of the Town of St. Paul wastewater treatment plant, and; **Outfall 103** is an internal outfall which consists solely of the discharge of the Dominion VCHEC facility.

The existing VPDES permit for the Town of St. Paul currently includes the following monitoring requirements and discharge limitations:

C. Outfall 001:

Parameter	Monthly Average	Weekly Average	Minimum	Maximum
pH	-	-	6.0 S.U.	9.0 S.U.
BOD5	30 mg/l 110 kg/d	45 mg/l 170 kg/d	-	-
TSS	30 mg/l 110 kg/d	45 mg/l 170 kg/d	-	-
Ammonia	7.1 mg/l	9.6 mg/l	-	-
E. coli	NL*	-	-	-
Acute Toxicity (vert)	-	-	-	NL*
Acute Toxicity (invert)	-	-	-	NL*
Chronic Toxicity (vert.)	-	-	-	NL*
Chronic Toxicity (invert)	-	-		NL*

* NL – monitoring only, no assigned limitations

D. Outfall 102: (WWTP)

Parameter	Monthly Average	Weekly Average	Minimum	Maximum
pH	-	-	6.0 S.U.	9.0 S.U.
BOD5	30 mg/l 79 kg/d	45 mg/l 119 kg/d	-	-
TSS	30 mg/l 79 kg/d	45 mg/l 119 kg/d	-	-
Ammonia	7.1 mg/l	9.6 mg/l	-	-
E. coli	126	-	-	-

E. Outfall 103: (VCHEC)

Parameter	Monthly Average	Weekly Average	Minimum	Maximum
pH	-	-	NL	NL
TSS	NL	NL	-	-

16. Discharge Description:

Any excess wastewater from the operation is ultimately discharged into the Clinch River in an outfall structure owned by the Town of St. Paul. The outfall combines the treated effluent from the municipal wastewater treatment plant with the treated industrial wastewater from the Dominion VCHEC facility and discharges it to the Clinch River at a single location. This proposed permit for the VCHEC facility addresses the following discharge control points:

001 - Outfall 001 is the combined discharge from the Town of St. Paul and the Dominion VCHEC facility. It is identical to the existing discharge location authorized as Outfall 001 under the existing VPDES permit for the Town of St. Paul (VA0026221). The proposed sampling location for Outfall 001 is a sampling manhole upstream of the diffuser structure which combines the effluent from the ST. Paul WWTP and the VCHEC facility.

103 - Outfall 103 is an internal outfall which consists solely of the discharge from the Dominion VCHEC facility.

It is identical to the existing discharge location authorized as internal Outfall 103 under the existing VPDES permit for the Town of St. Paul (VA0026221). The proposed sampling location for Outfall 103 is located inside the wastewater treatment building at a discharge tap which is installed on the final discharge line from the VCHEC Waste Water Treatment Plant.

17. Discharge Flows:

103 - The permit application proposed that the maximum daily flow of wastewater from the VCHEC facility is anticipated to be 0.72 MGD, and the monthly average anticipated flow is anticipated to be 0.216 MGD. However, because of the extensive recycle/reuse options at the facility the applicant expects that there will be extended periods of time under normal operating conditions when the facility is expected to result in no discharge to the receiving stream. Routine discharges are only expected during periods of shut-down that are accompanied by high levels of precipitation.

The VCHEC facility began operations on July 10, 2012, and has since directed all wastewater to the town system. A review of the monthly discharge monitoring reports submitted for the discharge indicate that the daily maximum discharge has ranged from 0.0 to 1.1 MGD, with an average maximum discharge of 0.58 MGD. The monthly average discharges have ranged from 0.0 to 0.49 MGD, and the long term average discharge from the operation has been reported to be 0.182 MGD. Although the prior monitoring had recorded a maximum discharge of 1.1 MGD, these flows were observed during May of 2012, during the start-up and testing phase of operations prior to the plant going "on-line". The lower anticipated maximum of 0.72 MGD identified in the application is based upon the lower discharges anticipated with the extensive recycle and reuse operations initiated at the plant, and is proposed to represent actual operational conditions.

001 - The Town of St. Paul is planning to construct a 0.5 MGD wastewater treatment plant to replace the existing aerated lagoon system currently in operation. However, given that the maximum reported flow from the current facility is approximately 0.4 MGD, and even with the anticipated potential expansion of the service area, the design flow of 0.5 MGD is likely higher than the actual anticipated flow from the facility. Therefore, the potential maximum combined daily discharge from both facilities is anticipated to be **1.2 MGD**.

18. Receiving Stream Flow Information:

The discharges are directed to the Clinch River at river mile 253.22. The USGS operates a gauging station approximately 20 miles upstream at the community of Cleveland (03524000). The historical low flow observations at this gauging station are summarized below:

A. **Clinch River at Cleveland (03524000)**

Drainage Area	528 mi^2	
1Q10	48 cfs	31 MGD
7Q10	54 cfs	35 MGD
30Q5	74 cfs	48 MGD
30Q10	65 cfs	42 MGD
Harmonic Mean	236 cfs	152 MGD

Drainage area proportions were utilized to estimate the potential stream flow characteristics at the discharge point:

B. **Clinch River at the Diffuser** (001)

Drainage Area	632 mi^2	
1Q10	57 cfs	37 MGD
7Q10	65 cfs	42 MGD
30Q5	89 cfs	57 MGD
30Q10	78 cfs	50 MGD
Harmonic Mean	283 cfs	183 MGD

There are two water users upstream of the diffuser location which may have a potential impact to the resulting low flow estimates. The Town of St. Paul Water Treatment Plant and the Appalachian Power Company – Clinch River Plant both operate water withdrawal points between the gauging station (03524000) and the diffuser discharge location (001). An earlier permit action for the St. Paul WWTP indicated that maximum withdrawal rate for the St Paul intake was recorded to be 0.412 MGD. The previous permit action also cited the maximum daily withdrawal from the APCO Clinch River Plant to be 20.2 MGD. Therefore the previous permit action for the St. Paul WWTP utilized the following low flow estimates in its limits development:

C. **2008 Adjusted Clinch River at the Diffuser** (001)

1Q10	25 cfs	16 MGD
7Q10	32 cfs	21 MGD
30Q5	57 cfs	37 MGD
30Q10	46 cfs	30 MGD
Harmonic Mean	251 cfs	162 MGD

However, in its application for issuance of the permit, Dominion asserted that the 2008 adjusted flow estimates are excessively restrictive because they assume 100% consumptive use at the upstream APCO Clinch River Plant. They proposed an alternate set of low flow figures which is based upon an analysis of the "net consumptive use" at the APCO facility. In their analysis, Dominion examined the reported monthly withdrawal data from the Clinch River Plant for the period from 2005 to 2011. They also examined the reported return flows from the discharge monitoring for the APCO facility during the same period. Daily average withdrawals were compared to the reported return flows for the same period in order to determine a ratio of usage to return for the report period. The ratios were then utilized to produce a "median percent return flow" of 22% for the analysis period. This expected "net" withdrawal at the Clinch River was reduced by the average 22% return factor which the applicant proposes that DEQ utilize their adjusted figures. The resulting low flow estimates would be:

D. **2013 Adjusted "Net Consumption" Clinch River at the Diffuser** (001)

1Q10	32 cfs	**21 MGD**
7Q10	40 cfs	**26 MGD**
30Q5	64 cfs	**41 MGD**
30Q10	53 cfs	**34 MGD**
Harmonic Mean	258 cfs	**167 MGD**

A copy of the applicant's "Net Consumptive Use Analysis" is included in the permit application as Application Attachment F. The DEQ staff has reviewed the basis for the net consumption determination and has reviewed the calculations utilized in Dominion's analysis, and the Department staff concurs with its findings. Therefore, the adjusted figures as described in 18.D, above will be utilized to predict compliance with the aquatic-toxicity based water Quality Standards in accordance with the provisions of 9VAC25-260.20 and 9VAC25-260.140.

19. Discharge Structure Design:

The combined effluent from the two wastewater streams is directed into a passive diffuser discharge structure installed within the channel of the Clinch River. The diffuser was installed above the river bottom and is anchored to two concrete bollards placed in the channel. The diffuser extends 32.5 feet into the river which is approximately 1/3 of the normal channel width (i.e. ~100 ft.). The diffuser has 10 equally spaced ports and is designed to discharge the wastewater equally along its width. The alignment of the ports is such that, at low effluent and river flows, only eight of the ten ports discharge. The ports are aligned at an angle of approximately 26 degrees from horizontal and are pointed downstream to minimize potential clogging from debris. During low stream flow periods, the elevation of the ports is at, or near, the surface of the receiving stream elevation.

The CORMIX model was used to predict the dilution and mixing conditions which result from the discharge. CORMIX is a USEPA-supported mixing zone model and decision support system for environmental impact assessment of regulatory mixing zones resulting from continuous point source discharges, and is used as a tool to ascertain compliance with the missing zone requirements of the Virginia Water Quality Standards. Previous modeling of the discharge using CORMIX was conducted for the initial discharge permit for the Town. Since the "as-built" conditions of the diffuser are slightly different from the conceptual design initially planned, the application included updated CORMIX modeling results which describe the expected mixing conditions in the receiving stream.

A summary and interpretation of the CORMIX model results were included in the application as Application Attachment G. The model was "run" using the as-built conditions listed above with the initial estimated flows, and with the modified flows based upon current projections outlined in Item 17 and Item 18 above. The results indicate that the as-built conditions with the prior flow regime provide similar results to the initial conceptual proposal. The model results using the updated flows referenced in Item 17 and Item 18 above, estimate that full vertical mixing is achieved within 13 feet downstream of the diffuser, and complies with the mixing zone requirements of 9 VAC-25-260.20. Because the diffuser extends approximately 1/3 of the horizontal width of the receiving stream, the complete mix calculations for waste load allocations are made with 33% of the critical flow volumes of the receiving stream.

20. VCHEC Discharge Water Quality:

The application for issuance of the permit included analysis results from a series of sampling events intended to characterize the water quality of the proposed discharge. The application included the results of samples collected on July 9, 2012, July 29, 2012 and August 13, 2012, and provided a screening for all water quality standards pollutants. Included in the application were results for dissolved and total recoverable metals, pesticides, PCB's, base neutral extractables, volatiles, radioactivity, acid extractables and other miscellaneous potential pollutants. The samples were taken from the final discharge from the wastewater treatment plant (identified as internal outfall 103), prior to its discharge to the Town of St. Paul. The following table contains the results of **all** potential WQS pollutants which were detected in the discharge. **All other potential pollutants were reported below the method detection level of the analyses**.

Parameter	7/09/12 Results	7/30/12 Results	8/13/12 Results	MDL	RL	Comments
Aluminum (total)	BDL	86 ug/l	54 ug/l	17 ug/l	50 ug/l	
Arsenic (dissolved)	6.5 ug/l*	6.3 ug/l *	BDL	5.7 ug/l	30 ug/l	* estimated value below RL
Barium (dissolved)	63 ug/l	61 ug/l	51 ug/l	38 ug/l	30 ug/l	
Barium (total)	67 ug/l	69 ug/l	53 ug/l	38 ug/l	30 ug/l	
Boron (total)	35 ug/l	44 ug/l	50 ug/l	20 ug/l	30 ug/l	
Copper (dissolved)	7.9 ug/l *	4.4 ug/l *	BDL	3.4 ug/l	10 ug/l	* estimated value below RL
Copper (total)	3.4 ug/l *	BDL	BDL	3.4 ug/l	10 ug/l	* estimated value below RL

Hardness (as $CaCO_3$)	220 mg/l	292 mg/l	340 mg/l	4 mg/l	4 mg/l	Mean Hardness 284 mg/l
Iron (dissolved)	25 ug/l	BDL	BDL	23 ug/l	50 ug/l	
Iron (total)	305 ug/l	384 mg/l	658 ug/l	10 ug/l	50 ug/l	
Molybdenum (total)	NR	7.7 ug/l *	12 ug/l *	3.6 ug/l	30 ug/l	* estimated value below RL
Selenium (dissolved)	BDL	2.41 ug/l	3.03 ug/l	0.692 ug/l	2.0 ug/l	
Selenium (total)	BDL	2.38 ug/l	2.76 ug/l	0.692 ug/l	2.0 ug/l	
Zinc (dissolved)	2.8 ug/l *	BDL	BDL	1.3 ug/l	10 ug/l	* estimated value below RL
Zinc (total)	10 ug/l	1.9 ug/l *	2.3 ug/l*	1.3 ug/l	10 ug/l	* estimated value below RL
Radionuclide (alpha)	1.9 pC/l	NR	NR	0.6 pC/l	-	error +/- 0.5 pC/l
Radionuclide (beta)	6.0 pC/l	NR	NR	0.8 pC/l	-	error +/- 0.6 pC/l

MDL – method detection limit
RL – reporting limit
BDL – below detection limit
NR – not reported

The results of the sampling conducted to date indicate that the wastewater treatment system produces a consistent, high quality effluent. The complete laboratory analysis results are included in the application materials as Application Attachment H.

21. St. Paul WWTP Discharge Water Quality:

As part of their permit requirements and application for reissuance, the Town of St. Paul submitted the results of four separate quarterly analyses performed for the full suite of water quality standards pollutants. The testing was conducted in conjunction with whole effluent toxicity testing and was a requirement of the current permit. This screening included analyses for dissolved metals, pesticides, PCB's, base neutral extractables, volatiles, radioactivity, acid extractables and other miscellaneous potential pollutants. The samples were obtained from the final combined effluent from both wastewater streams (i.e. VCHEC + St. Paul) which is identified as outfall 001 in VPDES Permit VA0026221.

Most potential pollutants were not detected in concentrations above the detection limits of the tests. The following table lists the maximum analysis results of **all** potential pollutants detected in the discharge:

Parameter	**Max Results**	**MDL**	**RL**	**Comments**
Antimony	24 ug/l	23 ug/l	30 ug/l	* estimated value below RL
Barium (dissolved)	11 ug/l *	1.5 ug/l	30 ug/l	* estimated value below RL
Chromium (dissolved)	1.1 ug/l*	0.044 ug/l	2.0 ug/l	* estimated value below RL
Copper (dissolved)	5.8 ug/l*	1 ug/l	10 ug/l	* estimated value below RL
Hardness	194 mg/l*	4 mg/l	4 mg/l	* Mean Value from WET tests
Iron (dissolved)	186 ug/l	23 ug/l	50 ug/l	
Lead (dissolved)	4.6 ug/l *	3.1 ug/l	30 ug/l	* estimated value below RL
Manganese (dissolved)	99 ug/l	21 ug/l	50 ug/l	
Selenium (dissolved)	0.7 ug/l *	0.692 ug/l	2.0 ug/l	* estimated value below RL
Silver (dissolved)	5.7 ug/l *	2.9 ug/l	30 ug/l	* estimated value below RL
Zinc (dissolved)	15 ug/l	0.2 ug/l	10 ug/l	
Chloride	22 mg/l	0.23 mg/l	1 mg/l	
Sulfide	2.4 mg/l	1.0 mg/l	1.0 mg/l	
Nitrate	0.456 mg/l	0.04 mg/l	0.2 mg/l	
Sulfate	30.7 mg/l	1.2 mg/l	10 mg/l	

MDL – method detection limit

RL – reporting limit
BDL – below detection limit
NR – not reported

22. Ambient Water Quality Information:

In August 2009, the Virginia Electric Power Company (i.e. Dominion) and the Virginia Department of Environmental Quality entered into a cooperative agreement which established five ambient water quality monitoring stations along the Clinch River, both upstream and downstream of the VCHEC and St. Paul discharges. The agreement established a monitoring plan for a number of conventional pollutants and dissolved metal compounds including analyses for low level mercury (i.e. ng/l – nanogram per liter – 10^{-9} gram/liter). DEQ began quarterly sampling at these five locations on March 10, 2010 and will continue the sampling program under this agreement until September 2015.

To date, DEQ has completed the analysis of twelve sample sets under this program. For the purposes of this permit action, the data from the sampling site upstream of the proposed discharge (6BCLN264.27), and the data from the site immediately downstream of the proposed discharge (6BCLN249.62) have been examined. The following tables summarize the results:

A. Upstream Ambient Monitoring: (6BCLN264.27)

Parameter	# tests	MDL	Minimum	Average	Maximum
Aluminum (dissolved)	11	0.3 ug/l	2.80 ug/l	5.13 ug/l	9.1 ug/l
Antimony (dissolved)	11	0.001 ug/l	BDL	BDL	BDL
Arsenic (dissolved)	11	0.06 ug/l *	0.12 ug/l	0.32 ug/l	0.52 ug/l
Barium (dissolved)	11	4.0 ug/l *	34.3 ug/l	44.2 ug/l	58.7 ug/l
Beryllium (dissolved)	11	0.04 ug/l	BDL	BDL	BDL
Cadmium (dissolved)	11	0.03 ug/l	BDL	BDL	BDL
Calcium (dissolved)	11	0.04 ug/l	31.3 ug/l	40.7 ug/l	45.4 ug/l
Chromium (dissolved)	11	0.03 ug/l	0.13 ug/l	1.9 ug/l	4.4 ug/l
Copper (dissolved)	11	0.05 ug/l*	0.3 ug/l	0.7 ug/l	1.4 ug/l
E. coli	12	-	25 c/100ml	302 c/100ml	1250 c/100ml
Hardness (as CaCO3)	11	0.22 mg/l	106 mg/l	149 mg/l	175 mg/l
Iron (dissolved)	11	12 ug/l	BDL	BDL	BDL
Lead (dissolved)	11	0.02 ug/l	BDL	BDL	BDL
Magnesium (dissolved)	11	0.03 ug/l	6.82 ug/l	11.6 ug/l	15.9 mg/l
Manganese (dissolved)	11	0.030 ug/l	0.4 ug/l	7.0 ug/l	12.6 ug/l
Mercury (dissolved)	11	0.78 ng/l	BDL (9 of 11)	0.7 ng/l	2.4 ng/l
Nickel (dissolved)	11	0.5 g/l	0.22 ug/l	1.04 ug/l	1.9 ug/l
Nitrite plus Nitrate	12	0.008 mg/l	0.6 mg/l	0.96 mg/l	1.81 mg/l
Ammonia	12	0.008 mg/l	BDL (8 of 12)	0.05 mg/l	0.14 mg/l
Nitrogen, Kjeldahl	12	0.02 mg/l	0.2 mg/l	0.43 mg/l	0.9 mg/l
Total Nitrogen	12	0.02 mg/l	0.92 mg/l	1.36 mg/l	2.36 mg/l
Phosphorus	12	0.002 mg/l	0.01 mg/l	0.04 mg/l	0.13 mg/l
TSS	12	1 mg/l	3 mg/l	13 mg/l	52 mg/l
TDS (filterable residue)	12	5 mg/l	158 mg/l	201 mg/l	242 mg/l
Selenium (dissolved)	11	0.08 ug/l	BDL(10 of 11)	0.49 ug/l	0.6 ug/l
Silver (dissolved)	11	0.1 ug/l	BDL	BDL	BDL
Thallium(dissolved)	11	0.02 ug/l	BDL	BDL	BDL
Zinc (dissolved)	11	0.4 ug/l	BDL (8 of 11)	1.4 ug/l	2.47 ug/l

B. Downstream Ambient Monitoring: (6BCLN249.62)

Parameter	# tests	MDL	Minimum	Average	Maximum
Aluminum (dissolved)	12	0.3 ug/l	2.04 ug/l	4.2 ug/l	9.9 ug/l
Antimony (dissolved)	12	0.01 ug/l	BDL (11of 12)	0.05 ug/l	0.05 ug/l
Arsenic (dissolved)	12	0.06 ug/l	BDL	0.27 ug/l	0.48 ug/l
Barium (dissolved)	12	4 ug/l	32.7 ug/l	42.7 ug/l	54.8 ug/l
Beryllium (dissolved)	12	0.04 ug/l	BDL	BDL	BDL
Cadmium (dissolved)	12	0.30 ug/l	BDL	BDL	BDL
Calcium (dissolved)	12	0.04 mg/l	33 mg/l	40.6 mg/l	47.4 mg/l
Chromium (dissolved)	12	0.09 ug/l	0.1 ug/l	2.3 ug/l	5.1 ug/l
Copper (dissolved)	12	0.05 ug/l	0.31 ug/l	0.7 ug/l	1.36 ug/l
E. coli	12	-	25 co/100ml	273 co/100ml	1000 co/100ml
Hardness (as CaCO3)	12	0.12 mg/l	115 mg/l	150 mg/l	188 mg/l
Iron (dissolved)	12	12 ug/l	BDL	BDL	BDL
Lead (dissolved)	12	0.01 ug/l	BDL	BDL	BDL
Magnesium (dissolved)	12	0.03 mg/l	7.9 mg/l	11.8 mg/l	16.8 mg/l
Manganese (dissolved)	12	0.03 ug/l	1.9 ug/l	5.5 ug/l	15.7 ug/l
Mercury (dissolved)	12	0.8 ng/l	BDL	BDL	BDL
Nickel (dissolved)	12	0.08 ug/l	0.25 ug/l	0.97 ug/l	1.36 ug/l
Nitrite plus Nitrate	12	0.008 mg/l	0.6 mg/l	1.0 mg/l	1.76 mg/l
Ammonia	12	0.008 mg/l	BDL (10 of 12)	0.04 mg/l	0.08 mg/l
Nitrogen, Kjeldahl	12	0.02 mg/l	0.1 mg/l	0.4 mg/l	0.8 mg/l
Total Nitrogen	12	0.02 mg/l	0.93 mg/l	1.3 mg/l	2.26 mg/l
Phosphorus	12	0.002 mg/l	0.02 mg/l	0.04 mg/l	0.14 mg/l
TSS	12	1 mg/l	3 mg/l	14 mg/l	76 mg/l
TDS (filterable residue)	12	5 mg/l	170 mg/l	206 mg/l	244 mg/l
Selenium (dissolved)	12	0.3 ug/l	BDL (11 of 12)	0.5 ug/l	0.5 ug/l
Silver (dissolved)	12	0.03 ug/l	BDL	BDL	BDL
Thallium(dissolved)	12	0.02 ug/l	BDL	BDL	BDL
Zinc (dissolved)	12	0.4 ug/l	BDL (8 of 12)	1.1 ug/l	1.68 ug/l

23. Water Quality Standards:

DEQ regulations (9 VAC 25-260) establish water quality standards intended to protect all state waters for recreation, wildlife, the growth of a balanced population of aquatic life, and the production of edible and marketable fish and shellfish. The standards contain numeric limits for specific physical, chemical, biological or radiological characteristics of water. They also contain general and specific descriptions, because not all requirements for water quality protection can be numerically defined. These statements and numeric limits describe water quality necessary to meet and maintain uses such as swimming and other water-based recreation, public water supply, and the propagation and growth of aquatic life.

The segment to which this facility discharges (VAS-P09R – Clinch River) is defined in 9 VAC 25-260-500 as Clinch River Section 2a and is classified as public water supply waters because the location is upstream of the public water supply intake for the Wise County PSA water treatment plant. Also, the discharge location at river mile 253.22 is downstream of the segment which has special water quality criteria for copper (i.e. special standard "X" applies to the Clinch River between river mile 255.4 and river mile 268).

Specific water quality standards for all of the 132 potential numeric pollutants were determined using a DEQ developed spreadsheet and the results are included as **Fact Sheet Attachment D**. The following table includes those potential pollutants which have been identified in the discharge either from the analysis of the combined

wastewater or from the analysis of the VCHEC discharge, or are otherwise anticipated to be a component of either wastewater stream. Where applicable, these standards were calculated based upon the following ambient conditions and assumptions and the anticipated "worst-case" stream flows and combined maximum daily effluent flows.

A. Calculation Assumptions:

Effluent Flow	1.2 MGD	Max daily flow (0.72 MGD VCHEC + 0.5 MGD St. Paul)
Mean Effluent Hardness	284 mg/l $CaCO_3$	From VCHEC monitoring results
Mean Stream Hardness	150 mg/l $CaCO_3$	Upstream Ambient Station (6BCLN264.27)

B. Numeric Water Quality Standards:

Parameter	Acute Standard	Chronic Standard	Human Health Standard	Comments
Aluminum	NA	NA	NA	
Ammonia	4.71 mg/l	0.913 mg/l	NA	
Arsenic	340 ug/l	150 ug/l	10 ug/l	
Barium	NA	NA	2,000 ug/l	
Boron	NA	NA	NA	
Cadmium	6.5 ug/l	1.6 ug/l	5.0 ug/l	
Chloride	860,000 ug/l	230,000 ug/l	250,000 ug/l	
Chlorine (TRC)*	19 ug/l	11 ug/l	NA	* See 9VAC25-260-110 Halogen Ban
Chromium III	830 ug/l	110 ug/l	NA	
Chromium VI	16 ug/l	11 ug/l	NA	
Total Chromium	NA	NA	100 ug/l	
Copper	21 ug/l	13 ug/l	1,300 ug/l	
Iron	NA	NA	300 ug/l	
Lead	210 ug/l	24 ug/l	15 ug/l	
Manganese	NA	NA	50 ug/l	
Molybdenum	NA	NA	NA	
Mercury	1.4 ug/l	0.77 ug/l	NA	
Nickel	270 ug/l	30 ug/l	610 ug/l	
Selenium	20 ug/l	5.0 ug/l	170 ug/l	
Sulfate	NA	NA	250,000 ug/l	
Silver	7.5 ug/l	NA	NA	
Zinc	170 ug/l	170 ug/l	7400 ug/l	

This stream segment is also cited in 9 VAC-25-260-110 as waters subject to a halogen ban due to the presence of a number of endangered species of mussels. Chlorine and other halogen compounds such as bromine, bromine chloride, hypochlorite and chlorine dioxide are prohibited for use for disinfection and biocide applications except for discharges who intermittently chlorinate. Dischargers who intermittently chlorinate (i.e. < 2 hours in any 8 hr period) are required to install equipment or employ procedures to ensure that the facility meets the numeric limitations of 9VAC250-260-140B. Chlorine usage is limited to the "clean-in-place" process of the raw water treatment system described in Item 12.D above, and complies with the intermittent use exception to the halogen ban.

24. 303(d) Listed Segments (TMDL):

This facility discharges directly to the Clinch River at river mile 253.22. The stream receiving the effluent is currently meeting the water quality standards for its designated use, and is **not** listed as impaired on the current 303(d) list. The analysis results cited in the tables 22.A and 22.B above and the additional results of the ambient monitoring special study confirm the high quality waters of the receiving stream.

Special permit considerations: None

25. Anti-Degradation Review:

Tier: 1 _____ 2 X 3_____

The State Water Control Board's Water Quality Standards includes an antidegradation policy (9VAC25-260-30). All state surface waters are provided one of three levels of antidegradation protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier 2 water bodies have water quality that is better than the water quality standards. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 water bodies are exceptional waters and are so designated by regulatory amendment. The antidegradation policy prohibits new or expanded discharges into exceptional waters.

The antidegradation review begins with a Tier determination. Because this segment of the Clinch River watershed currently meets all water quality standards, the receiving waters are considered to be high quality waters, and the segment is classified as “Tier 2” waters.

Since the quality of Tier 2 waters is better than required by the standards, the regulations mandate that no significant degradation of the existing quality will be allowed. In order to comply with the above restrictions, it is necessary to establish anti-degradation baselines at the time the water is assigned to the Tier 2 category. This baseline identifies the quality that must be maintained by the current proposal as well as all future proposals, and is defined as the difference between the existing water quality and the lower quality allowed by the standards.

In order to protect current and future uses, the agency has implemented a policy that concludes that no significant degradation of water quality results if: no more than 25% of the unused assimilative capacity for toxic criteria for the protection of aquatic life, and; no more than 10% of the unused assimilative capacity is allocated for the protection of human health. These anti-degradation baselines have been incorporated in all parameter specific calculations to develop the waste load allocations and the resulting effluent limitations are based on the maximum concentration of pollutant whose discharge under theoretical “worst-case” conditions of maximum effluent flow during drought stream flow conditions would not raise the in-stream concentration above these 25% and 10% thresholds.

26. Effluent Screening and Limitation Development:

A. **Technology Based limits** - EPA promulgated the Steam Electric Power Generating effluent limitation guidelines (ELG) and standards (40 CFR Part 423) in 1974, and amended the regulation in 1977, 1978, 1980 and 1982. The regulation covers wastewater discharges from power plants operating as utilities, and is used as a minimum threshold for establishing effluent limitations for the permit. The following sources of wastewater from the VCHEC facility are addressed in ELG’s of this regulation: low volume waste sources (i.e. boiler blow down, water treatment waste streams, floor drains, etc); metal cleaning wastes; cooling tower blow down and; coal pile runoff.

. In 2010, EPA provided guidance on "NPDES Permitting of Wastewater Discharges from Flue Gas Desulfurization and Coal Combustion Residual Impoundments at Steam Electric Power Plants" from the EPA Office of Wastewater Management (June 7, 2010). This guidance provides information on establishing technology based effluent limitation for FGD wastewater. During the development of this draft permit the DEQ staff reviewed this guidance; however, the Dominion – VCHEC only employs a dry FGD system to control air emissions. Similarly, the 2010 guidance also provides information to consider when evaluating the need to establish water quality effluent limitations for coal combustion residual (CCR) impoundments. However, the VCHEC facility handles all CCR's (both bottom ash and fly ash) in a dry state, and no wastewater is produced from the ash handling and disposal process. Since no wastewater is produced as a result of the FGD system or ash transport and disposal systems, no additional effluent limitations are proposed.

The following recommended minimum limitations are based upon the New Source Performance Standards as designated by 40CFR 423.15:

Parameter	Minimum	Monthly Average	Daily Maximum	Comments
pH	6.0 S.U.	--	9.0 S.U.	
TSS	--	30 mg/l	100 mg/l	
Oil and Grease	--	15 mg/l	20 mg/l	
Copper	--	1,000 ug/l	1,000 ug/l	
Iron	--	1,000 ug/l	1,000 ug/l	
Chromium	--	200 ug/l	200 ug/l	
Zinc (total)	--	1,000 ug/l	1,000 ug/l	
Chlorine	--	500 ug/l	200 ug/l	

B. **Water Quality Based Limitations** - In addition to the minimum requirements cited above, the VPDES permit regulation requires that any water quality based parameter which has a "reasonable potential" to violate the numeric water quality standards must also be limited in the permit in order to prevent toxicity in the receiving stream. The Department has established a procedure to calculate waste load allocations (WLA) and establish site specific and parameter specific water quality based effluent limitations which would protect downstream water quality during critical low flow periods. The procedure takes into consideration the existing background levels within the stream, the anticipated stream and effluent flows, mixing zone estimates and the anti-degradation requirements outlined in Item 25 in order to develop a target maximum concentration which will ensure that the regulatory water quality standards are met. In order to model potential "worst-case" conditions the maximum concentration of each pollutant, as determined by the upstream ambient monitoring was utilized to calculate the appropriate site specific waste load allocations.

The following WLA's for the pollutants listed below were calculated using a steady state complete mix equation and the assumptions listed above (i.e. upstream hardness; effluent hardness; 25% & 10% Anti-degradation baseline; Maximum Daily Flow; etc).:

Proposed Waste Load Allocations:

Parameter	Acute WLA	Chronic WLA	Human Health WLA	Comments
Aluminum	NA	NA	NA	
Ammonia	49.6 mg/l	13.92 mg/l	NA	Based on the St. Paul draft permit
Arsenic	1,600 ug/l	850 ug/l	34 ug/l	

Barium	NA	NA	6,900 ug/l	
Boron	NA	NA	NA	
Cadmium	30 ug/l	9.1 ug/l	18 ug/l	
Chloride	4,000,000 ug/l	1,300,000 ug/l	880,000 ug/l	
Chlorine (TRC)	88 ug/l	62 ug/l	NA	
Chromium III	3,800 ug/l	600 ug/l	NA	
Chromium VI	74 ug/l	62 ug/l	NA	
Total Chromium	NA	NA	340 ug/l	
Copper	90 ug/l	68 ug/l	4,600 ug/l	
Iron	NA	NA	960 ug/l	
Lead	980 ug/l	130 ug/l	53 ug/l	
Manganese	NA	NA	140 ug/l	
Molybdenum	NA	NA	NA	
Mercury	6.5 ug/l	4.4 ug/l*	NA	*- Chronic based on methyl mercury
Nickel	1200 ug/l	160 ug/l	2,100 ug/l	
Selenium	90 ug/l	26 ug/l	600 ug/l	
Sulfate	NA	NA	880,000 ug/l	
Silver	35 ug/l	NA	NA	
Zinc	790 ug/l	960 ug/l	26,000 ug/l	

27. Whole Effluent Toxicity:

In order to ensure that surface waters meet their beneficial uses and comply with the narrative water quality standards, the Department has implemented a potential toxicity testing program which uses whole effluent toxicity tests on complex effluents which may contain numerous potential toxicants in order to detect possible additive, synergistic or antagonistic effects upon to organisms in the receiving waters. The program employs both acute and chronic toxicity tests to measure potential aggregate affects of potential lethality and/or the potential impacts to growth and reproduction of the test organisms. Standard surrogate vertebrate and invertebrate species are used in the tests in accordance with EPA's technical support document for water quality based toxicity control.

The current permit for the St. Paul WWTP included special conditions which required the operator to begin the assessment of the potential whole effluent toxicity after the commencement of the discharge from the VCHEC facility. The permit required quarterly acute and chronic toxicity tests on the combined effluent using both *Ceriodaphnia dubia* and *Pimephales promelas* for a minimum of 10 tests. The Town of St. Paul included the results of four of the quarterly tests with their application for reissuance of the permit. The results are summarized below:

A. **Town of St. Paul Toxicity Tests** (combined effluent):

Test Dates	**Test Type**	**Species**	**48h LC_{50}**	**NOEC**	**% survival 100% Effluent**
3/27/12 – 4/3/12	Chronic	*P. promelas*	-	100% Survival 52% Growth	85%
	Acute	*P. promelas*	> 100%		100%
	Chronic	*C. dubia*		100% Survival 100% Reproduction	100%
	Acute	*C. dubia*	> 100%		100%
5/22/12 - 5/29/12	Chronic	*P. promelas*		100% Survival 13% Growth	83%
	Acute	*P. promelas*	> 100%		100%
	Chronic	*C. dubia*		100% Survival 100% Reproduction	100%

	Acute	*C. dubia*	> 100%		100%
8/7/12 – 8/14/12	Chronic	*P. promelas*		100% Survival 100% Growth	100%
	Acute	*P. promelas*	> 100%		100%
	Chronic	*C. dubia*		100% Survival 100% Reproduction	100%
	Acute	*C. dubia*	> 100%		100%
11/6/12 – 11/13/12	Chronic	*P. promelas*		100% Survival 100% Growth	90%
	Acute	*P. promelas*	> 100%		100%
	Chronic	*C. dubia*		100% Survival 100% Reproduction	100%
	Acute	*C. dubia*	> 100%		95%

Similarly, the Dominion VCHEC facility also conducted a series of whole effluent toxicity tests and submitted the results of the testing with their permit application. The testing coincided with the chemical analysis screening described in Item 20 above. A summary of the test results are listed below:

B. **Dominion VCHEC Toxicity Tests**:

Test Dates	**Test Type**	**Species**	**48h LC_{50}**	**NOEC**	**% survival 100% Effluent**
7/9/12/ - 7/12/12	Chronic	*P. Promelas*	-	100% Survival 100% Growth	98%
	Acute	*P. promelas*	>100%		100%
	Chronic	*C. dubia*		100% Survival 100% Reproduction	100%
	Acute	*C. dubia*	84%		35%
7/30/12 – 8/2/12	Chronic	*P. promelas*		100% Survival 100% Growth	95%
	Acute	*P. promelas*	>100%		100%
	Chronic	*C. dubia*		100% Survival 100% Reproduction	100%
	Acute	*C. dubia*	>100%		
8/13/12 – 8/16/12	Chronic	*P. promelas*		100% Survival 100% Growth	100%
	Acute	*P. promelas*	>100%		100%
	Chronic	*C. dubia*		100% Survival 100% Reproduction	100%
	Acute	*C. dubia*	>100%		100%

The whole effluent toxicity testing conducted to date on the discharges from the two facilities do not indicate that the effluent is potentially toxic as defined by the policies and definitions utilized by the department to assess whole effluent toxicity. However, additional data is necessary to address potential effluent variability and to provide additional data for the statistical analysis required for the assessment of a potential whole effluent toxicity limit. Therefore, the proposed permit requires additional whole effluent toxicity analysis be conducted on the final combined discharge. Both acute and chronic tests will be required quarterly on both vertebrate and invertebrate species for ten additional quarters. Sampling for these tests shall be conducted on the combined final effluent from outfall 001. The sampling should reflect conditions when **both VCHEC and the St. Paul wastewater treatment plant are discharging wastewater**.

28. Effluent Limitations:

For those pollutants that have been detected in the potential discharge; have an established technology based ELG; or are otherwise expected to be present in the wastewater, the Department has evaluated each parameter to determine if there exists a "reasonable potential" to contravene the numeric water quality standards of the receiving stream. The analysis is performed utilizing the Department's established guidelines which provide a statistical evaluation of the effluent variability to determine if the effluent has a "reasonable potential" to violate the standards. The Department's procedures are based upon the recommendations contained in the Technical Support Document, published by EPA. The procedure used in this evaluation is outlined in the DEQ Guidance Memorandum No. 00-2011, "Guidance on Preparing VPDES Limits", which is used statewide as a basis for permit decisions. The following is a parameter-by-parameter description of the results of this process:

A. Aluminum – Virginia has adopted no numeric water quality standards for Aluminum, and aluminum is not cited in the ELG's for the facility. No permit limits are required.

B. Ammonia – Analysis of the Ammonia limitations is included in the companion St. Paul permit because ammonia and other nitrogen compounds are associated with treatment of domestic waste. Its presence was not detected in the discharge from the VCHEC facility, and no limits are imposed by this proposed permit.

C. Arsenic – Bio-available (i.e. dissolved) arsenic was detected at or near the limits of detection in two of the three analyses submitted with the VCHEC application. Arsenic was not detected in the St. Paul discharge. The most limiting aquatic life WLA for the discharge is 850 ug/l and the human health WLA was determined to be 34 ug/l. An analysis of the sample data indicates that no effluent limitations are required for Arsenic.

D. Barium – Barium was detected in both the discharge from the VCHEC facility and in the wastewater from the St. Paul treatment plant in concentrations in the range of 11 ug/l to a maximum of 63 ug/l. The human health WLA for Barium was determined to be 6,900 ug/l. An analysis of the sample data indicates that no effluent limitations are required for Barium.

E. Boron – The VCHEC facility had detected levels of Boron in the discharge in the range of 35 ug/l to a maximum of 50 ug/l. Virginia has adopted no numeric water quality standards for Boron and no permit limits are required.

F. Chloride – Although no detectable levels of Chloride were found in the VCHEC discharge, Chloride levels in the St. Paul discharge were measured to be 22 mg/l. The most limiting WLA for Chloride was 880 mg/l. An analysis of the sample data indicates that no effluent limitations are required for Chloride.

G. Total Residual Chlorine (TRC) – The VCHEC facility uses chlorine in their raw water treatment process which produces water for the cooling tower make-up water and boiler make-up water. Chlorine is not used in the wastewater treatment process, is not anticipated to be a component of the ultimate discharge, and the analysis results of the discharge confirm that no detectable levels of TRC are present. Because it is a component of the federal ELG's and because it is used onsite for disinfection of the raw water, it is included in the evaluation. However, both the acute and chronic WLA's (i.e. 88 ug/l and 62 ug/l) are below the limits of detection (100 ug/l). The statistical analysis was performed using arbitrary values above the quantification limit. This results in a proposed effluent limitation of 88 ug/l monthly average and 88 ug/l daily maximum. This level is numerically below the limits of detection but is included in the permit.

H. Chromium – Chromium was not detected in either the VCHEC or the St. Paul discharge. However, the

ELG's for steam electric power generation facilities include an effluent limitation of 200 ug/l for the discharge. The human health WLA for total chromium was calculated to be 340 ug/l, and no more restrictive WQ based limitations for total chromium are triggered by the discharge of effluent at the ELG concentrations. However, the WQ Standards have more restrictive aquatic life standards for the trivalent form of chromium (Chromium III) and the hexavalent form of chromium (Chromium VI). In the absence of analysis data which isolates the different forms, the Department proposes to impose the more restrictive WLA on the discharge (i.e. Chromium VI) and evaluate the proposed ELG maximum concentration to determine if a WQ limit would be required. The statistical analysis indicated that a more restrictive effluent limitation of **62 ug/l** is required for the discharge.

I. Copper – The VCHEC discharge detected the presence of copper compounds near the limits of detection at estimated concentrations between 4.4 ug/l and 7.9 ug/l. The most restrictive WLA based on chronic toxicity is 68 ug/l. However, the ELG's for steam electric power generation facilities include an effluent limitation of 1000 ug/l for the discharge. The statistical analysis using the ELG level of 1000 ug/l indicates that an effluent limitation of **90 ug/l** is required.

J. Iron - The VCHEC discharge detected the presence of total iron concentrations between 305 ug/l and 658 ug/l. The ELG's for steam electric power generation facilities include an effluent limitation of 1000 ug/l total iron for the discharge. The human health waste load allocation for the PWS waters 1100 ug/l. Therefore, the most restrictive of these limits is used as effluent limitation for total iron.

K. Lead – Although lead was not detected in the VCHEC discharge it was estimated to be present (i.e. 4.1 ug/l) in the St. Paul discharge near the limits of detection. The most restrictive WLA based upon the human health criteria for lead is 53 ug/l. Because the presence of lead was not detected in the discharge from the VCHEC facility, no limits are proposed in this permit.

L. Manganese - Although manganese was not detected in the VCHEC discharge it was found to be present (i.e. 99 ug/l) in the St. Paul discharge near the limits of detection. The most restrictive WLA based upon the human health criteria is 140 ug/l. Because the presence of manganese was not detected in the discharge from the VCHEC facility, no limits are proposed in this permit.

M. Molybdenum - The VCHEC facility had estimated levels of molybdenum in the discharge at or near the limits of detection. Virginia has adopted no numeric water quality standards for molybdenum and no permit limits are required.

N. Mercury – Mercury was not detected in the discharge from either the VCHEC facility or the St. Paul discharge. No limitations are proposed by this issuance.

O. Nickel – Nickel was not detected in either the St. Paul or the VCHEC discharge. However, it is included in this evaluation because the ambient monitoring has detected levels of nickel in the receiving waters. The reported maximum was 1.9 ug/l, which is significantly less than the most limiting regulatory WQ standard of 30 ug/l. Since the analyses of the discharges have not identified the presence of Nickel no permit limits are required for the facility.

P. Selenium – Selenium was detected in the VCHEC discharge in the range of 2.3 ug/l to 3.0 ug/l. The most limiting WLA calculated for the discharge was determined to be 26 ug/l based upon the potential chronic toxicity. However, the analysis of the data indicates that no permit limit is necessary to protect the receiving stream.

Q. Sulfate - Although no detectable levels of Sulfate were found in the VCHEC discharge, sulfate levels in the St. Paul discharge were measured to be 31,000 ug/l. The most limiting WLA for Sulfate was 880,000

ug/l. An analysis of the sample data indicates that no effluent limitations are required for Sulfate.

R. Silver - Although no detectable levels of Silver were found in the VCHEC discharge, silver levels in the St. Paul discharge were estimated to be near the limits of detection (3 ug/l). The most limiting WLA for silver was 35 ug/l. An analysis of the sample data indicates that no effluent limitations are required for silver.

S. Zinc – The VCHEC discharge detected the presence of zinc compounds near the limits of detection at estimated concentrations between 2.3 ug/l and 10 ug/l. The most restrictive WLA based on acute toxicity is 790 ug/l. However, the ELG's for steam electric power generation facilities include an effluent limitation of 1000 ug/l for the discharge. The statistical analysis using at the potential discharge at the ELG level of 1000 ug/l indicates that an effluent limitation of 790 ug/l is required to protect the numeric standard.

No other potential pollutants have been detected in the discharge, are assigned effluent limitations in accordance the CFR 423, or have been identified as having a reasonable potential to contravene the numeric water quality standards of the receiving stream. Consequently, no additional effluent limitations are necessary. The conclusion that no additional WQ based effluent limitations are necessary to maintain the regulatory water quality standards of the receiving stream is also supported by the consistently high stream quality noted in the downstream ambient monitoring.

The proposed effluent limitations and monitoring requirements are summarized below:

Parameter	Minimum	Monthly Average	Daily Maximum	Basis*	Frequency	Sample Type
pH	6.0 S.U.	--	9.0 S.U.	WQS	1/ Month	Grab
TSS	--	30 mg/l	100 mg/l	ELG	1/ Month	Composite
Oil and Grease	--	15 mg/l	20 mg/l	ELG	1/ Month	Grab
Copper	--	68 ug/l	68 ug/l	WQS	1/ Month	Composite
Iron	--	1000ug/l	1000ug/l	ELG	1/ Month	Composite
Chromium	--	62 ug/l	62 ug/l	WQS	1/ Month	Composite
Zinc	--	790 ug/l	790 ug/l	WQS	1/ Month	Composite
Chlorine (TRC)	--	88 ug/l	88 ug/l	WQS	1/ Month	Grab

* - WQS = Water Quality Standards; ELG = Effluent limitation Guidelines

The proposed effluent limitations will apply at **outfall 103**, the VCHEC discharge, and be monitored at the tap on the discharge line which is located inside the wastewater treatment building. However, to increase the confidence that the above conclusions accurately reflect the conditions at the facility, and to increase the confidence that the above effluent limitations reflect all potential pollutants which have a "reasonable potential" to contravene the water quality standards, the draft permit requires that monitoring of the water quality standards pollutants continue on a quarterly basis until at least 10 additional sets of monitoring data are obtained. The monitoring shall coincide with the samples collected for the WET testing which is outlined in Item 27 above. At the conclusion of the 10 additional tests, the Department will re-evaluate the "reasonable potential analysis" using the resulting larger data set. This evaluation will also coincide with the conclusion of the ambient monitoring special study to further increase the confidence in the conclusion of the current analysis.

29. Anti-Backsliding:

Because the proposed action is a new issuance, and the effluent limitations included in the draft permit are at least as restrictive to those in the existing St. Paul permit (VA0026221), the proposed action conforms to the anti-backsliding provision of the regulations.

30. Solid Waste Disposal:

All coal combustion by-products and all waste water treatment residuals are placed in the Curley Hollow solid waste management facility for disposal under the provisions of a solid waste management permit issued by the Department under the Virginia Administrative Code 9 VAC 20-81-400 et seq.

31. Material Storage:

The following materials are stored onsite:

A. Coal Storage – Coal for fuel is stored onsite in the materials handling area. Surface water runoff from this area is directed to the wastewater treatment system described in 12.F above.

B. Limestone Storage – Crushed limestone for boiler feed is stored onsite at the materials handling area. Surface water runoff from this area is directed to the wastewater treatment system described in 12.F above.

C. Biomass Storage – Wood chips and other wood waste are used for fuel and are stored in the biomass storage area. Surface water runoff from this area is controlled by VPDES General Permit VAR052001.

D. Sodium Hypochlorite - Chlorine used for raw water disinfection is stored indoors in the water treatment building. It is received as liquid in bulk container "totes" stored indoors, and dispensed directly from the container. All floor drains from this storage are directed into the waste treatment system.

E. Ferric Chloride - FeCl3 is utilized in the wastewater treatment and is stored indoors in the waste water treatment building. It is received as liquid in bulk container "totes" stored indoors, and dispensed directly from the container.

F. Liquid Polymer – A commercial liquid coagulant utilized in the wastewater treatment is stored indoors in the waste water treatment building. It is received as liquid in bulk container "totes" stored indoors, and dispensed directly from the container.

G. Soda Ash – Soda Ash utilized in the wastewater treatment is stored indoors in the waste water treatment building in a hopper. It is received as a powder, transferred from bulk trucks pneumatically and dispensed inside the waste water treatment building.

H. Lime Storage – Lime for the dry flue gas desulfurization is stored in an enclosed hopper adjacent to the air quality control system building. The lime is received in enclosed bulk trucks and transferred pneumatically to the hopper.

I. Ammonia - Ammonia for the selective non-catalytic reduction (SNCR) for NO_x emissions is stored in tanks adjacent to the air quality control system building. The ammonia is received in liquid form from tankers and pumped into the storage tanks. The transfer location and the storage tanks have secondary

containment to preclude any discharge to surface waters in the event of accidental release.

32. Site Inspection:

Date: March 7, 2013 Performed By: Mark Trent

DEQ staff conducted a site inspection to confirm the conditions and processes described in the permit application. No changes to the application materials were requested as a result of the site inspection.

33. Storm Water Discharges Associated with Industrial Activity:

The VPDES Permit regulations 9 VAC 25-31-10 establish requirements for dischargers of storm water associated with industrial activity. According to these regulations, the definition of storm water associated with industrial activity includes:

1) Landfills, land application sites, and open dumps that receive or have received industrial wastes, including those subject to regulation under subtitle D of RCRA and;

2) Steam electric power generating facilities, including coal handling sites.

Therefore, all outfalls from the facility which contain storm water runoff from these categories of discharges are subject to the storm water provisions of the VPDES program. The storm water runoff from the active portions of the landfill is directed to the landfill leachate collection system, and is ultimately treated in the WWTP which is directed to outfall 001. All other sources of "storm water associated with industrial activity" are authorized by a separate permit authorization issued under the provisions of 9VAC25-151. This authorization was issued effective February 16, 2011 under the General Permit Registration number VAR052001. A review of the documents and monitoring reports required by this general permit authorization indicate that the facility is currently in compliance with all provisions of the general permit.

34. Special Conditions:

The following special conditions are included in the permit:

A. **Federal ELG Reopener**: The permit contains a standard industrial re-opener which provides a mechanism to re-open the permit if necessary due to changes in effluent limitations or other requirements approved under Section 307(a)(2) of the Clean Water Act (Part I.B.1).

Rationale: This special condition was included in order to address any new regulatory requirements or technology based guidelines promulgated for the industrial classification. EPA is currently developing a proposed rule to amend the effluent guidelines and standards for the Steam Electric Power Generating category. Although the current focus of the potential amendments is to address wastewater from flue gas desulfurization systems and ash handling (VCHEC does not generate wastewater from these sources), the reopener is included in the event that the amendments include changes which affect the facility.

B. **Prohibition of Additives**: The permit contains a special condition which prohibits the use of cooling water additives which contain any of the 126 priority pollutants. (Part I.B.2)

Rationale: The condition is based upon the requirements of 40 CFR Part 423.15(j) in the NSPS of the

federal effluent guidelines.

C. **Materials Handling/Storage:** The permit includes a special condition which requires the facility to implement protections to prohibit the discharge of materials stored onsite. (Part I.B.3)

Rationale: 9VAC25-31-50.A prohibits the discharge of any wastes into State waters unless authorized by permit. Code of Virginia §62.1-44.16 and §62.1-44.17 authorizes the Board to regulate the discharge of industrial waste or other waste.

D. **O&M Manual Requirement:** The permit includes a requirement that the facility develop and maintain a Operation and Maintenance Manual for the wastewater treatment system. (Part I.B.4)

Rationale: Required by Code of Virginia § 62.1-44.16; VPDES Permit Regulation, 9VAC25-31-190 E, and 40 CFR 122.41(e). These require proper operation and maintenance of the permitted facility. Compliance with an approved O&M manual ensures this.

E**.** **Notification Levels:** The permit includes a special condition which requires the permittee to notify the Department if they discharge certain toxic pollutants above established concentrations. (Part I.B.5)

Rationale: Required by VPDES Permit Regulation, 9VAC25-31-200 A for all manufacturing, commercial, mining, and silvicultural dischargers.

F. **Licensed Operator Requirement:** The permit includes a special condition which requires the facility to employ or contract the services of a Class II waste water treatment operator. (Part I.B.6)

Rationale: Required by VPDES Permit Regulation, 9VAC25-31-200 C and The Code of Virginia §54.1-2300 et seq, Rules and Regulations for Waterworks and Wastewater Works Operators (18VAC160-20-10 et seq.), requires licensure of operators.

G. **Compliance Reporting:** The permit includes guidelines and instructions for monitoring and reporting of pollutants (Part I.B.7).

Rationale: Authorized by VPDES Permit Regulation, 9VAC25-31-190 J 4 and 220 I. This condition is necessary when pollutants are monitored by the permittee and a maximum level of quantification and/or a specific analytical method is required in order to assess compliance with a permit limit or to compare effluent quality with a numeric criterion. The condition also establishes protocols for calculation of reported values.

H. **Total Maximum Daily Load (TMDL) Reopener:** The permit includes a re-opener to address potential future TMDL waste load allocations for the discharge. Although the receiving waters are not on the current 303(d) list, the special condition is included should future water quality assessments include this stream segment. (Part I.B.8)

Rationale: Section 303(d) of the Clean Water Act requires that Total Maximum Daily Loads (TMDLs) be developed for streams listed as impaired. This special condition is to allow the permit to be reopened if necessary to bring it into compliance with any applicable TMDL approved for the receiving stream. The re-opener recognizes that, according to Section 402(o)(1) of the Clean Water Act, limits and/or conditions may be either more or less stringent than those contained in this permit. Specifically, they can be relaxed if they are the result of a TMDL, basin plan, or other waste load allocation prepared under section 303 of the Act.

I. **Water Quality Criteria Monitoring:** The permit includes a special condition which requires additional testing of the water quality standards pollutants. (Part I.B.9)

Rationale: State Water Control Law §62.1-44.21 authorizes the Board to request information needed to determine the discharge's impact on State waters. To ensure that water quality standards are maintained, the permittee is required to analyze the facility's effluent for the substances noted.

J. Water Quality Criteria Reopener: The permit includes a special condition which allows the permit to be reopened should any of the monitoring of water quality standards pollutants indicated there is a reasonable potential for violation of any water quality standard. (Part I.B.10)

Rationale: VPDES Permit Regulation, 9VAC25-31-220 D requires effluent limitations to be established which will contribute to the attainment or maintenance of the water quality standards.

K. Whole Effluent Toxicity Testing: The permit includes a special condition which requires additional testing for potential whole effluent toxicity. (Part I.B.11)

Rationale: VPDES Permit Regulation, 9VAC25-31-210 and 220.I, requires monitoring in the permit to provide for and assure compliance with all applicable requirements of the State Water Control Law and the Clean Water Act. Additional testing is required in order to assess effluent variability and to provide greater confidence in the statistical analysis of the data.

L. Part II, Conditions Applicable to All Permits:

Rationale: VPDES Permit Regulation, 9VAC25-31-190 requires all VPDES permits to contain or specifically cite the conditions listed.

35. Changes in the Permit:

A. Owner Requested Modifications to Initial Draft Permit: None

B. Changes Proposed in Response to Other Comments:

The proposed permit limits for Copper were changed to reflect the chronic toxicity wasteload allocation. The re-evaluation of the limit was prompted by comments received from the US Fish and Wildlife Service, and was justified by the potential continuous discharge from outfall 001.

36. Variances/ Alternative Limits or Conditions:

No variances from regulatory requirements are proposed in this permit action.

37. NPDES Permit Rating Worksheet:

The staff has completed the NPDES Permit Rating Worksheet and has determined that the facility meets the criteria to be classified as a major source. The completed worksheet is on file at the regional office.

Total Score: **600**

38. Public Notice Information:

In accordance with 9 VAC 25-31-290, a public notice will be published once per week for two consecutive weeks in a newspaper of general circulation in the area affected by the discharge. A copy of the public notice and all pertinent information is on file and may be inspected or copied by contacting Mark Trent at:

Department of Environmental Quality
Southwest Regional Office
355-A Deadmore Street
Abingdon, VA 24210
Phone: (276) 676-4800
E-mail address: mark.trent@deq.virginia.gov

Persons may comment in writing, hand delivered, or by electronic mail to the DEQ on the proposed issuance of the permit, and may request a public hearing, during the comment period. Comments shall include the name, address, and telephone number of the writer, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing if public response is significant. Requests for public hearings shall state the reason why a hearing is requested, the nature of the issues proposed to be raised in the public hearing and a brief explanation of how the requester's interests would be directly and adversely affected by the proposed permit action.

Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Notice of any public hearing will be provided.

Public Notice Beginning date: June 25, 2013

Public Notice End date: July 26, 2013

39. Additional Comments:

A. **Previous Board Action**: None

B. **Applicant Comments:** The initial draft permit was sent to the applicant on April 24, 2013 for review. The company provided comments and modification requests on May 28, 2013. A copy of the applicant comments and a summary of the DEQ response are included as Attachment E.

C. **Other Agency Comments:** In accordance with the April 2007 Memorandum of Understanding regarding threatened and endangered species screening the DEQ-SWRO forwarded the application, draft permit and supporting documentation to the Virginia Department of Game and Inland Fisheries, the Virginia Department of Conservation and Recreation and the United States Fish and Wildlife Service on **June 25, 2013**. The following summarizes each agency's response:

1) Virginia Department of Game and Inland Fisheries – on July 25, 2013, the Department received comments regarding the proposal. The comments provided no specific requests or recommendations for draft permit changes.

2) Virginia Department of Conservation and Recreation – no comments were received.

3) United States Fish and Wildlife Service – The Service provided comments in correspondence dated July 25, 2013. A copy of the comments is included as Fact Sheet Attachment F. The DEQ staff reviewed the comments and has incorporated them into the permit record. Where appropriate, the Department has modified the permit to incorporate the requests; however, many of the comments are beyond the scope and standard practices of our delegated regulatory program. A copy of the response to the USFWS is included as Fact Sheet Attachment G.

D. **Public Notice Comments**: None

E. **EPA Comments:** The application, fact sheet and draft permit were submitted to the EPA for review. Correspondence dated July 17, 2013 indicated that the EPA staff had reviewed the documents and determined the proposal to be consistent with the effluent limitation guidelines and anti-degradation requirements, and the agency had no comments or objections regarding the proposal.

40. Response to Comments:

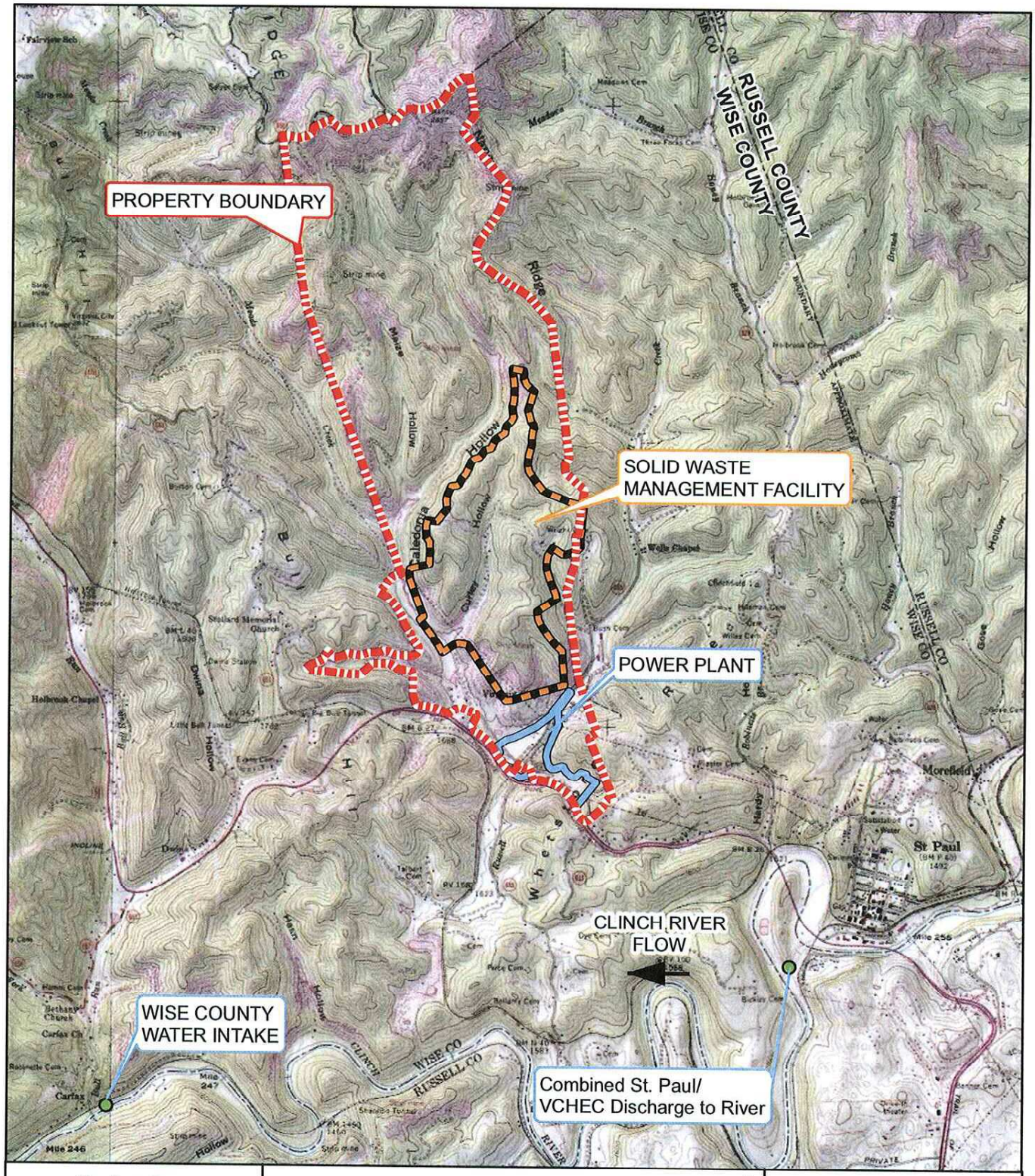
See Attachment G.

41: State Water Control Board Action: None

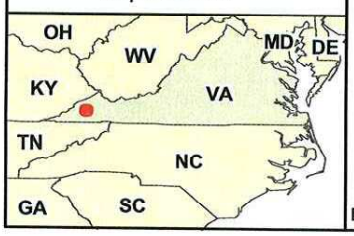
List of Attachments

1. Attachment A – Location Map
2. Attachment B – Flow Schematic
3. Attachment C – Wastewater Treatment Schematic
4. Attachment D – WLA Spreadsheet
5. Attachment E – Dominion Comments on Initial Proposed Draft Permit
6. Attachment F – Comments Received from USFWS
7. Attachment G – DEQ Response to USFWS Comments

Attachment A
Location Map



Map Location



Site Location Map

Dominion Virginia Power
Wise County, Virginia

Image Source: USGS Quads: Saint Paul and Weddington, VA

0 1 2 Miles

N

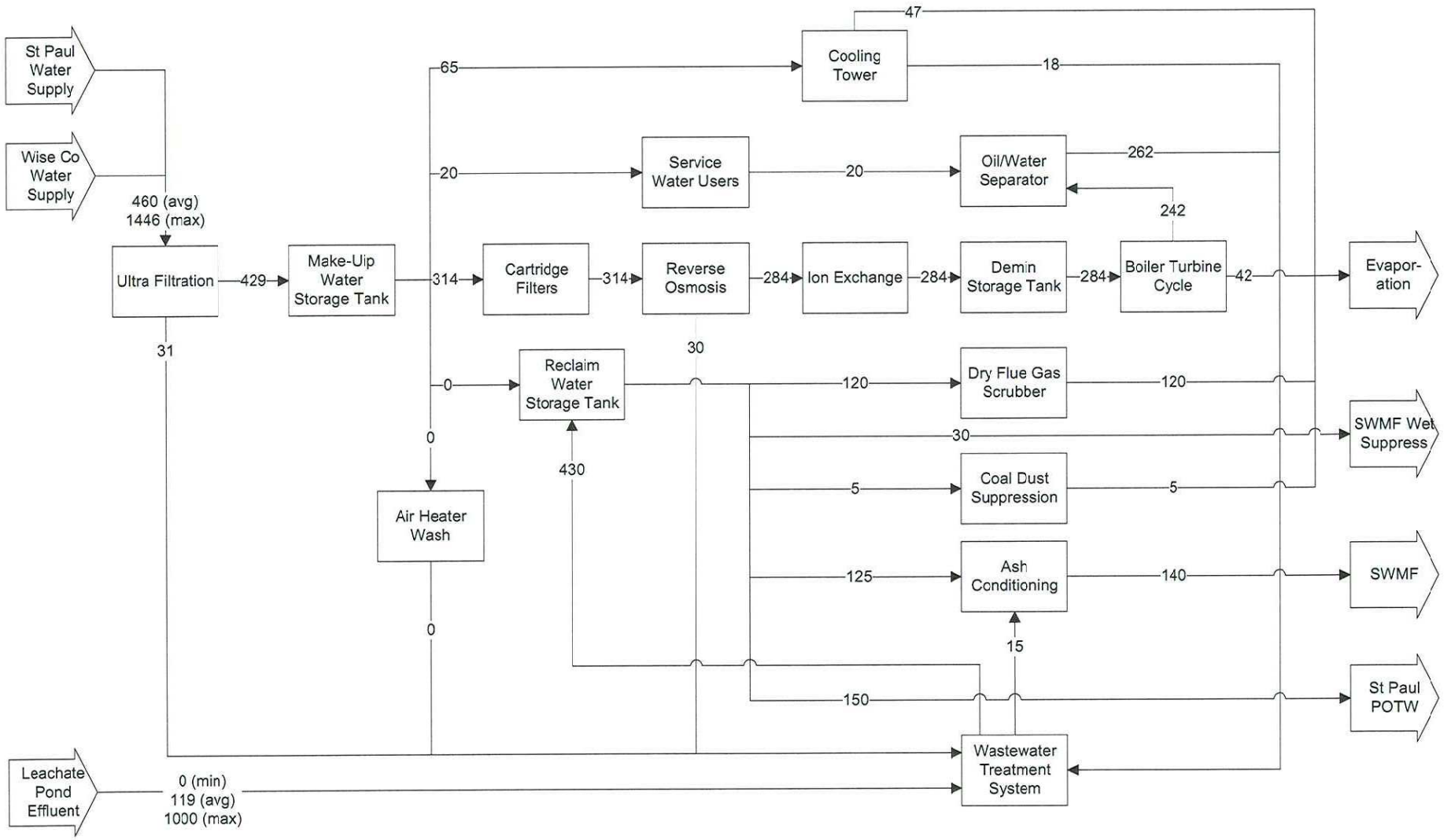
Date: October 2012

Project No: 60274534.100

Figure 1

AECOM North Carolina, Inc.
8540 Colonnade Center Drive, Suite 306
Raleigh, NC 27615
Phone: (919) 872-6600
Fax: (919) 872-7996
Web: http://www.aecom.com

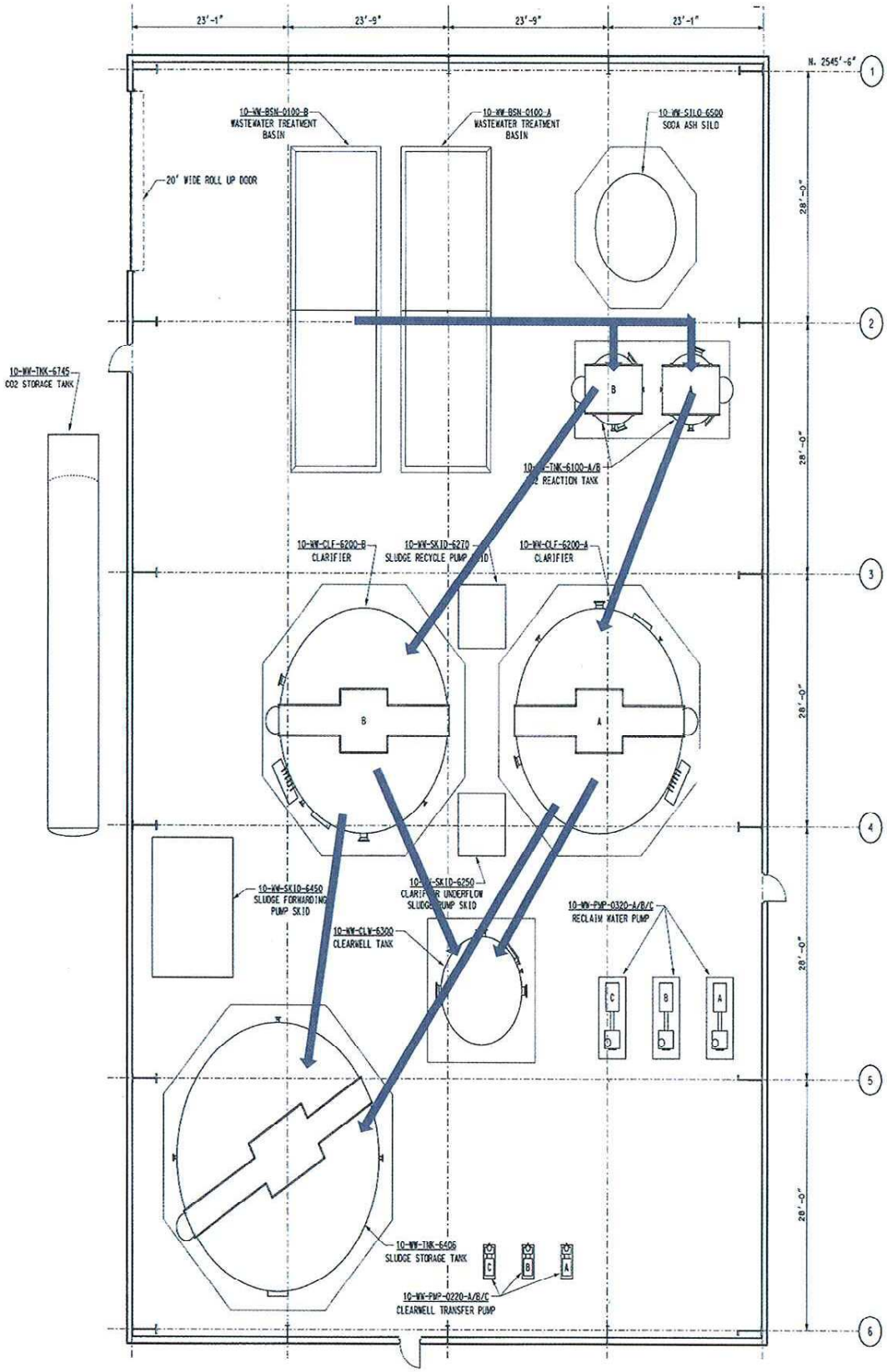
VCHEC Water Balance



All flow rates indicated are in gallons per minute

Attachment B
Flow Schematic

Attachment C
Wastewater Plant Diagram



WASTEWATER TREATMENT BUILDING

PLAN VIEW
(TOP OF SLAB 1620'-6")

0 4' 8' 16' 24'

SCALE: 1/8"=1'-0"

Attachment D
Waste Load Allocations

FRESHWATER
WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: Dominion VCHEC Permit No.: VA0092746

Receiving Stream: Clinch River Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information			Stream Flows			Mixing Information			Effluent Information		
Mean Hardness (as CaCO3) =	150	mg/L	1Q10 (Annual) =	21	MGD	Annual - 1Q10 Mix =	33	%	Mean Hardness (as CaCO3) =	284	mg/L
90% Temperature (Annual) =	23	deg C	7Q10 (Annual) =	26	MGD	- 7Q10 Mix =	33	%	90% Temp (Annual) =	23	deg C
90% Temperature (Wet season) =	23	deg C	30Q10 (Annual) =	34	MGD	- 30Q10 Mix =	33	%	90% Temp (Wet season) =	23	deg C
90% Maximum pH =	8.3	SU	1Q10 (Wet season) =	21	MGD	Wet Season - 1Q10 Mix =	33	%	90% Maximum pH =	7.221	SU
10% Maximum pH =	7	SU	30Q10 (Wet season)	34	MGD	- 30Q10 Mix =	33	%	10% Maximum pH =	7	SU
Tier Designation (1 or 2) =	2		30Q5 =	41	MGD				Discharge Flow =	1.2	MGD
Public Water Supply (PWS) Y/N? =	y		Harmonic Mean =	167	MGD						
Trout Present Y/N? =	n										
Early Life Stages Present Y/N? =	y										

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	**Acute**	**Chronic**	**HH (PWS)**	**HH**
Acenapthene	5	--	--	6.7E+02	9.9E+02	--	--	2.3E+04	3.5E+04	--	--	7.2E+01	1.0E+02	--	--	2.3E+03	3.5E+03	**--**	**--**	**2.3E+03**	**3.5E+03**
Acrolein	0	--	--	6.1E+00	9.3E+00	--	--	2.1E+02	3.3E+02	--	--	6.1E-01	9.3E-01	--	--	2.1E+01	3.3E+01	**--**	**--**	**2.1E+01**	**3.3E+01**
Acrylonitrile [C]	0	--	--	5.1E-01	2.5E+00	--	--	7.1E+01	3.5E+02	--	--	5.1E-02	2.5E-01	--	--	7.1E+00	3.5E+01	**--**	**--**	**7.1E+00**	**3.5E+01**
Aldrin [C]	0	3.0E+00	--	4.9E-04	5.0E-04	2.0E+01	--	6.9E-02	7.0E-02	7.5E-01	--	4.9E-05	5.0E-05	1.4E+01	--	6.9E-03	7.0E-03	**1.4E+01**	**--**	**6.9E-03**	**7.0E-03**
Ammonia-N (mg/l) (Yearly)	0	1.05E+01	1.44E+00	--	--	7.10E+01	1.49E+01	--	--	1.75E+00	2.76E-01	--	--	3.23E+01	8.09E+00	--	--	**3.23E+01**	**8.09E+00**	**--**	**--**
Ammonia-N (mg/l) (High Flow)	0	1.05E+01	1.44E+00	--	--	7.10E+01	1.49E+01	--	--	1.75E+00	2.76E-01	--	--	3.23E+01	8.09E+00	--	--	**3.23E+01**	**8.09E+00**	**--**	**--**
Anthracene	0	--	--	8.3E+03	4.0E+04	--	--	2.9E+05	1.4E+06	--	--	8.3E+02	4.0E+03	--	--	2.9E+04	1.4E+05	**--**	**--**	**2.9E+04**	**1.4E+05**
Antimony	0	--	--	5.6E+00	6.4E+02	--	--	2.0E+02	2.3E+04	--	--	5.6E-01	6.4E+01	--	--	2.0E+01	2.3E+03	**--**	**--**	**2.0E+01**	**2.3E+03**
Arsenic	0.52	3.4E+02	1.5E+02	1.0E+01	--	2.3E+03	1.2E+03	3.3E+02	--	8.5E+01	3.8E+01	1.5E+00	--	1.6E+03	8.5E+02	3.4E+01	--	**1.6E+03**	**8.5E+02**	**3.4E+01**	**--**
Barium	59	--	--	2.0E+03	--	--	--	6.8E+04	--	--	--	2.5E+02	--	--	--	6.9E+03	--	**--**	**--**	**6.9E+03**	**--**
Benzene [C]	0	--	--	2.2E+01	5.1E+02	--	--	3.1E+03	7.1E+04	--	--	2.2E+00	5.1E+01	--	--	3.1E+02	7.1E+03	**--**	**--**	**3.1E+02**	**7.1E+03**
Benzidine [C]	0	--	--	8.6E-04	2.0E-03	--	--	1.2E-01	2.8E-01	--	--	8.6E-05	2.0E-04	--	--	1.2E-02	2.8E-02	**--**	**--**	**1.2E-02**	**2.8E-02**
Benzo (a) anthracene [C]	0	--	--	3.8E-02	1.8E-01	--	--	5.3E+00	2.5E+01	--	--	3.8E-03	1.8E-02	--	--	5.3E-01	2.5E+00	**--**	**--**	**5.3E-01**	**2.5E+00**
Benzo (b) fluoranthene [C]	0	--	--	3.8E-02	1.8E-01	--	--	5.3E+00	2.5E+01	--	--	3.8E-03	1.8E-02	--	--	5.3E-01	2.5E+00	**--**	**--**	**5.3E-01**	**2.5E+00**
Benzo (k) fluoranthene [C]	0	--	--	3.8E-02	1.8E-01	--	--	5.3E+00	2.5E+01	--	--	3.8E-03	1.8E-02	--	--	5.3E-01	2.5E+00	**--**	**--**	**5.3E-01**	**2.5E+00**
Benzo (a) pyrene [C]	0	--	--	3.8E-02	1.8E-01	--	--	5.3E+00	2.5E+01	--	--	3.8E-03	1.8E-02	--	--	5.3E-01	2.5E+00	**--**	**--**	**5.3E-01**	**2.5E+00**
Bis2-Chloroethyl Ether [C]	0	--	--	3.0E-01	5.3E+00	--	--	4.2E+01	7.4E+02	--	--	3.0E-02	5.3E-01	--	--	4.2E+00	7.4E+01	**--**	**--**	**4.2E+00**	**7.4E+01**
Bis2-Chloroisopropyl Ether	0	--	--	1.4E+03	6.5E+04	--	--	4.9E+04	2.3E+06	--	--	1.4E+02	6.5E+03	--	--	4.9E+03	2.3E+05	**--**	**--**	**4.9E+03**	**2.3E+05**
Bis 2-Ethylhexyl Phthalate [C]	0	--	--	1.2E+01	2.2E+01	--	--	1.7E+03	3.1E+03	--	--	1.2E+00	2.2E+00	--	--	1.7E+02	3.1E+02	**--**	**--**	**1.7E+02**	**3.1E+02**
Bromoform [C]	0	--	--	4.3E+01	1.4E+03	--	--	6.0E+03	2.0E+05	--	--	4.3E+00	1.4E+02	--	--	6.0E+02	2.0E+04	**--**	**--**	**6.0E+02**	**2.0E+04**
Butylbenzylphthalate	0	--	--	1.5E+03	1.9E+03	--	--	5.3E+04	6.7E+04	--	--	1.5E+02	1.9E+02	--	--	5.3E+03	6.7E+03	**--**	**--**	**5.3E+03**	**6.7E+03**
Cadmium	0	7.1E+00	1.7E+00	5.0E+00	--	4.8E+01	1.4E+01	1.8E+02	--	1.6E+00	4.0E-01	5.0E-01	--	3.0E+01	9.1E+00	1.8E+01	--	**3.0E+01**	**9.1E+00**	**1.8E+01**	**--**
Carbon Tetrachloride [C]	0	--	--	2.3E+00	1.6E+01	--	--	3.2E+02	2.2E+03	--	--	2.3E-01	1.6E+00	--	--	3.2E+01	2.2E+02	**--**	**--**	**3.2E+01**	**2.2E+02**
Chlordane [C]	0	2.4E+00	4.3E-03	8.0E-03	8.1E-03	1.6E+01	3.5E-02	1.1E+00	1.1E+00	6.0E-01	1.1E-03	8.0E-04	8.1E-04	1.1E+01	2.4E-02	1.1E-01	1.1E-01	**1.1E+01**	**2.4E-02**	**1.1E-01**	**1.1E-01**
Chloride	0	8.6E+05	2.3E+05	2.5E+05	--	5.8E+06	1.9E+06	8.8E+06	--	2.2E+05	5.8E+04	2.5E+04	--	4.0E+06	1.3E+06	8.8E+05	--	**4.0E+06**	**1.3E+06**	**8.8E+05**	**--**
TRC	0	1.9E+01	1.1E+01	--	--	1.3E+02	9.0E+01	--	--	4.8E+00	2.8E+00	--	--	8.8E+01	6.2E+01	--	--	**8.8E+01**	**6.2E+01**	**--**	**--**
Chlorobenzene	0	--	--	1.3E+02	1.6E+03	--	--	4.6E+03	5.6E+04	--	--	1.3E+01	1.6E+02	--	--	4.6E+02	5.6E+03	**--**	**--**	**4.6E+02**	**5.6E+03**

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				**Most Limiting Allocations**			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	**Acute**	**Chronic**	**HH (PWS)**	**HH**
Chlorodibromomethane[C]	0	--	--	4.0E+00	1.3E+02	--	--	5.6E+02	1.8E+04	--	--	4.0E-01	1.3E+01	--	--	5.6E+01	1.8E+03	**--**	**--**	**5.6E+01**	**1.8E+03**
Chloroform	0	--	--	3.4E+02	1.1E+04	--	--	1.2E+04	3.9E+05	--	--	3.4E+01	1.1E+03	--	--	1.2E+03	3.9E+04	**--**	**--**	**1.2E+03**	**3.9E+04**
2-Chloronaphthalene	0	--	--	1.0E+03	1.6E+03	--	--	3.5E+04	5.6E+04	--	--	1.0E+02	1.6E+02	--	--	3.5E+03	5.6E+03	**--**	**--**	**3.5E+03**	**5.6E+03**
2-Chlorophenol	0	--	--	8.1E+01	1.5E+02	--	--	2.8E+03	5.3E+03	--	--	8.1E+00	1.5E+01	--	--	2.8E+02	5.3E+02	**--**	**--**	**2.8E+02**	**5.3E+02**
Chlorpyrifos	0	8.3E-02	4.1E-02	--	--	5.6E-01	3.3E-01	--	--	2.1E-02	1.0E-02	--	--	3.8E-01	2.3E-01	--	--	**3.8E-01**	**2.3E-01**	**--**	**--**
Chromium III	0	8.8E+02	1.1E+02	--	--	6.0E+03	9.2E+02	--	--	2.1E+02	2.7E+01	--	--	3.8E+03	6.0E+02	--	--	**3.8E+03**	**6.0E+02**	**--**	**--**
Chromium VI	0	1.6E+01	1.1E+01	--	--	1.1E+02	9.0E+01	--	--	4.0E+00	2.8E+00	--	--	7.4E+01	6.2E+01	--	--	**7.4E+01**	**6.2E+01**	**--**	**--**
Chromium, Total	4.4	--	--	1.0E+02	--	--	--	3.4E+03	--	--	--	1.4E+01	--	--	--	3.4E+02	--	**--**	**--**	**3.4E+02**	**--**
Chrysene [C]	0	--	--	3.8E-03	1.8E-02	--	--	5.3E-01	2.5E+00	--	--	3.8E-04	1.8E-03	--	--	5.3E-02	2.5E-01	**--**	**--**	**5.3E-02**	**2.5E-01**
Copper	1.4	2.2E+01	1.4E+01	1.3E+03	--	1.4E+02	1.0E+02	4.6E+04	--	6.2E+00	4.3E+00	1.3E+02	--	9.0E+01	6.8E+01	4.6E+03	--	**9.0E+01**	**6.8E+01**	**4.6E+03**	**--**
Cyanide, Free	0	2.2E+01	5.2E+00	1.4E+02	1.6E+04	1.5E+02	4.2E+01	4.9E+03	5.6E+05	5.5E+00	1.3E+00	1.4E+01	1.6E+03	1.0E+02	2.9E+01	4.9E+02	5.6E+04	**1.0E+02**	**2.9E+01**	**4.9E+02**	**5.6E+04**
DDD [C]	0	--	--	3.1E-03	3.1E-03	--	--	4.3E-01	4.3E-01	--	--	3.1E-04	3.1E-04	--	--	4.3E-02	4.3E-02	**--**	**--**	**4.3E-02**	**4.3E-02**
DDE [C]	0	--	--	2.2E-03	2.2E-03	--	--	3.1E-01	3.1E-01	--	--	2.2E-04	2.2E-04	--	--	3.1E-02	3.1E-02	**--**	**--**	**3.1E-02**	**3.1E-02**
DDT [C]	0	1.1E+00	1.0E-03	2.2E-03	2.2E-03	7.5E+00	8.2E-03	3.1E-01	3.1E-01	2.8E-01	2.5E-04	2.2E-04	2.2E-04	5.1E+00	5.7E-03	3.1E-02	3.1E-02	**5.1E+00**	**5.7E-03**	**3.1E-02**	**3.1E-02**
Demeton	0	--	1.0E-01	--	--	--	8.2E-01	--	--	--	2.5E-02	--	--	--	5.7E-01	--	--	**--**	**5.7E-01**	**--**	**--**
Diazinon	0	1.7E-01	1.7E-01	--	--	1.2E+00	1.4E+00	--	--	4.3E-02	4.3E-02	--	--	7.9E-01	9.6E-01	--	--	**7.9E-01**	**9.6E-01**	**--**	**--**
Dibenz(a,h)anthracene [C]	0	--	--	3.8E-02	1.8E-01	--	--	5.3E+00	2.5E+01	--	--	3.8E-03	1.8E-02	--	--	5.3E-01	2.5E+00	**--**	**--**	**5.3E-01**	**2.5E+00**
1,2-Dichlorobenzene	0	--	--	4.2E+02	1.3E+03	--	--	1.5E+04	4.6E+04	--	--	4.2E+01	1.3E+02	--	--	1.5E+03	4.6E+03	**--**	**--**	**1.5E+03**	**4.6E+03**
1,3-Dichlorobenzene	0	--	--	3.2E+02	9.6E+02	--	--	1.1E+04	3.4E+04	--	--	3.2E+01	9.6E+01	--	--	1.1E+03	3.4E+03	**--**	**--**	**1.1E+03**	**3.4E+03**
1,4-Dichlorobenzene	0	--	--	6.3E+01	1.9E+02	--	--	2.2E+03	6.7E+03	--	--	6.3E+00	1.9E+01	--	--	2.2E+02	6.7E+02	**--**	**--**	**2.2E+02**	**6.7E+02**
3,3-Dichlorobenzidine[C]	0	--	--	2.1E-01	2.8E-01	--	--	2.9E+01	3.9E+01	--	--	2.1E-02	2.8E-02	--	--	2.9E+00	3.9E+00	**--**	**--**	**2.9E+00**	**3.9E+00**
Dichlorobromomethane [C]	0	--	--	5.5E+00	1.7E+02	--	--	7.7E+02	2.4E+04	--	--	5.5E-01	1.7E+01	--	--	7.7E+01	2.4E+03	**--**	**--**	**7.7E+01**	**2.4E+03**
1,2-Dichloroethane [C]	0	--	--	3.8E+00	3.7E+02	--	--	5.3E+02	5.2E+04	--	--	3.8E-01	3.7E+01	--	--	5.3E+01	5.2E+03	**--**	**--**	**5.3E+01**	**5.2E+03**
1,1-Dichloroethylene	0	--	--	3.3E+02	7.1E+03	--	--	1.2E+04	2.5E+05	--	--	3.3E+01	7.1E+02	--	--	1.2E+03	2.5E+04	**--**	**--**	**1.2E+03**	**2.5E+04**
1,2-trans-dichloroethylene	0	--	--	1.4E+02	1.0E+04	--	--	4.9E+03	3.5E+05	--	--	1.4E+01	1.0E+03	--	--	4.9E+02	3.5E+04	**--**	**--**	**4.9E+02**	**3.5E+04**
2,4-Dichlorophenol	0	--	--	7.7E+01	2.9E+02	--	--	2.7E+03	1.0E+04	--	--	7.7E+00	2.9E+01	--	--	2.7E+02	1.0E+03	**--**	**--**	**2.7E+02**	**1.0E+03**
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	1.0E+02	--	--	--	3.5E+03	--	--	--	1.0E+01	--	--	--	3.5E+02	--	**--**	**--**	**3.5E+02**	**--**
1,2-Dichloropropane[C]	0	--	--	5.0E+00	1.5E+02	--	--	7.0E+02	2.1E+04	--	--	5.0E-01	1.5E+01	--	--	7.0E+01	2.1E+03	**--**	**--**	**7.0E+01**	**2.1E+03**
1,3-Dichloropropene [C]	0	--	--	3.4E+00	2.1E+02	--	--	4.8E+02	2.9E+04	--	--	3.4E-01	2.1E+01	--	--	4.8E+01	2.9E+03	**--**	**--**	**4.8E+01**	**2.9E+03**
Dieldrin [C]	0	2.4E-01	5.6E-02	5.2E-04	5.4E-04	1.6E+00	4.6E-01	7.3E-02	7.6E-02	6.0E-02	1.4E-02	5.2E-05	5.4E-05	1.1E+00	3.2E-01	7.3E-03	7.6E-03	**1.1E+00**	**3.2E-01**	**7.3E-03**	**7.6E-03**
Diethyl Phthalate	0	--	--	1.7E+04	4.4E+04	--	--	6.0E+05	1.5E+06	--	--	1.7E+03	4.4E+03	--	--	6.0E+04	1.5E+05	**--**	**--**	**6.0E+04**	**1.5E+05**
2,4-Dimethylphenol	0	--	--	3.8E+02	8.5E+02	--	--	1.3E+04	3.0E+04	--	--	3.8E+01	8.5E+01	--	--	1.3E+03	3.0E+03	**--**	**--**	**1.3E+03**	**3.0E+03**
Dimethyl Phthalate	0	--	--	2.7E+05	1.1E+06	--	--	9.5E+06	3.9E+07	--	--	2.7E+04	1.1E+05	--	--	9.5E+05	3.9E+06	**--**	**--**	**9.5E+05**	**3.9E+06**
Di-n-Butyl Phthalate	0	--	--	2.0E+03	4.5E+03	--	--	7.0E+04	1.6E+05	--	--	2.0E+02	4.5E+02	--	--	7.0E+03	1.6E+04	**--**	**--**	**7.0E+03**	**1.6E+04**
2,4 Dinitrophenol	0	--	--	6.9E+01	5.3E+03	--	--	2.4E+03	1.9E+05	--	--	6.9E+00	5.3E+02	--	--	2.4E+02	1.9E+04	**--**	**--**	**2.4E+02**	**1.9E+04**
2-Methyl-4,6-Dinitrophenol	0	--	--	1.3E+01	2.8E+02	--	--	4.6E+02	9.8E+03	--	--	1.3E+00	2.8E+01	--	--	4.6E+01	9.8E+02	**--**	**--**	**4.6E+01**	**9.8E+02**
2,4-Dinitrotoluene [C]	0	--	--	1.1E+00	3.4E+01	--	--	1.5E+02	4.8E+03	--	--	1.1E-01	3.4E+00	--	--	1.5E+01	4.8E+02	**--**	**--**	**1.5E+01**	**4.8E+02**
Dioxin 2,3,7,8-tetrachlorodibenzo-p-dioxin	0	--	--	5.0E-08	5.1E-08	--	--	1.8E-06	1.8E-06	--	--	5.0E-09	5.1E-09	--	--	1.8E-07	1.8E-07	**--**	**--**	**1.8E-07**	**1.8E-07**
1,2-Diphenylhydrazine[C]	0	--	--	3.6E-01	2.0E+00	--	--	5.0E+01	2.8E+02	--	--	3.6E-02	2.0E-01	--	--	5.0E+00	2.8E+01	**--**	**--**	**5.0E+00**	**2.8E+01**
Alpha-Endosulfan	0	2.2E-01	5.6E-02	6.2E+01	8.9E+01	1.5E+00	4.6E-01	2.2E+03	3.1E+03	5.5E-02	1.4E-02	6.2E+00	8.9E+00	1.0E+00	3.2E-01	2.2E+02	3.1E+02	**1.0E+00**	**3.2E-01**	**2.2E+02**	**3.1E+02**
Beta-Endosulfan	0	2.2E-01	5.6E-02	6.2E+01	8.9E+01	1.5E+00	4.6E-01	2.2E+03	3.1E+03	5.5E-02	1.4E-02	6.2E+00	8.9E+00	1.0E+00	3.2E-01	2.2E+02	3.1E+02	**1.0E+00**	**3.2E-01**	**2.2E+02**	**3.1E+02**
Alpha + Beta Endosulfan	0	2.2E-01	5.6E-02	--	--	1.5E+00	4.6E-01	--	--	5.5E-02	1.4E-02	--	--	1.0E+00	3.2E-01	--	--	**1.0E+00**	**3.2E-01**	**--**	**--**
Endosulfan Sulfate	0	--	--	6.2E+01	8.9E+01	--	--	2.2E+03	3.1E+03	--	--	6.2E+00	8.9E+00	--	--	2.2E+02	3.1E+02	**--**	**--**	**2.2E+02**	**3.1E+02**
Endrin	0	8.6E-02	3.6E-02	5.9E-02	6.0E-02	5.8E-01	2.9E-01	2.1E+00	2.1E+00	2.2E-02	9.0E-03	5.9E-03	6.0E-03	4.0E-01	2.0E-01	2.1E-01	2.1E-01	**4.0E-01**	**2.0E-01**	**2.1E-01**	**2.1E-01**
Endrin Aldehyde	0	--	--	2.9E-01	3.0E-01	--	--	1.0E+01	1.1E+01	--	--	2.9E-02	3.0E-02	--	--	1.0E+00	1.1E+00	**--**	**--**	**1.0E+00**	**1.1E+00**

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				**Most Limiting Allocations**			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	**Acute**	**Chronic**	**HH (PWS)**	**HH**
Ethylbenzene	0	--	--	5.3E+02	2.1E+03	--	--	1.9E+04	7.4E+04	--	--	5.3E+01	2.1E+02	--	--	1.9E+03	7.4E+03	**--**	**--**	**1.9E+03**	**7.4E+03**
Fluoranthene	0	--	--	1.3E+02	1.4E+02	--	--	4.6E+03	4.9E+03	--	--	1.3E+01	1.4E+01	--	--	4.6E+02	4.9E+02	**--**	**--**	**4.6E+02**	**4.9E+02**
Fluorene	0	--	--	1.1E+03	5.3E+03	--	--	3.9E+04	1.9E+05	--	--	1.1E+02	5.3E+02	--	--	3.9E+03	1.9E+04	**--**	**--**	**3.9E+03**	**1.9E+04**
Foaming Agents	0	--	--	5.0E+02	--	--	--	1.8E+04	--	--	--	5.0E+01	--	--	--	1.8E+03	--	**--**	**--**	**1.8E+03**	**--**
Guthion	0	--	1.0E-02	--	--	--	8.2E-02	--	--	--	2.5E-03	--	--	--	5.7E-02	--	--	**--**	**5.7E-02**	**--**	**--**
Heptachlor [C]	0	5.2E-01	3.8E-03	7.9E-04	7.9E-04	3.5E+00	3.1E-02	1.1E-01	1.1E-01	1.3E-01	9.5E-04	7.9E-05	7.9E-05	2.4E+00	2.2E-02	1.1E-02	1.1E-02	**2.4E+00**	**2.2E-02**	**1.1E-02**	**1.1E-02**
Heptachlor Epoxide[C]	0	5.2E-01	3.8E-03	3.9E-04	3.9E-04	3.5E+00	3.1E-02	5.5E-02	5.5E-02	1.3E-01	9.5E-04	3.9E-05	3.9E-05	2.4E+00	2.2E-02	5.5E-03	5.5E-03	**2.4E+00**	**2.2E-02**	**5.5E-03**	**5.5E-03**
Hexachlorobenzene[C]	0	--	--	2.8E-03	2.9E-03	--	--	3.9E-01	4.1E-01	--	--	2.8E-04	2.9E-04	--	--	3.9E-02	4.1E-02	**--**	**--**	**3.9E-02**	**4.1E-02**
Hexachlorobutadiene[C]	0	--	--	4.4E+00	1.8E+02	--	--	6.2E+02	2.5E+04	--	--	4.4E-01	1.8E+01	--	--	6.2E+01	2.5E+03	**--**	**--**	**6.2E+01**	**2.5E+03**
Hexachlorocyclohexane Alpha-BHC[C]	0	--	--	2.6E-02	4.9E-02	--	--	3.6E+00	6.9E+00	--	--	2.6E-03	4.9E-03	--	--	3.6E-01	6.9E-01	**--**	**--**	**3.6E-01**	**6.9E-01**
Hexachlorocyclohexane Beta-BHC[C]	0	--	--	9.1E-02	1.7E-01	--	--	1.3E+01	2.4E+01	--	--	9.1E-03	1.7E-02	--	--	1.3E+00	2.4E+00	**--**	**--**	**1.3E+00**	**2.4E+00**
Hexachlorocyclohexane Gamma-BHC[C] (Lindane)	0	9.5E-01	--	9.8E-01	1.8E+00	6.4E+00	--	1.4E+02	2.5E+02	2.4E-01	--	9.8E-02	1.8E-01	4.4E+00	--	1.4E+01	2.5E+01	**4.4E+00**	**--**	**1.4E+01**	**2.5E+01**
Hexachlorocyclopentadiene	0	--	--	4.0E+01	1.1E+03	--	--	1.4E+03	3.9E+04	--	--	4.0E+00	1.1E+02	--	--	1.4E+02	3.9E+03	**--**	**--**	**1.4E+02**	**3.9E+03**
Hexachloroethane[C]	0	--	--	1.4E+01	3.3E+01	--	--	2.0E+03	4.6E+03	--	--	1.4E+00	3.3E+00	--	--	2.0E+02	4.6E+02	**--**	**--**	**2.0E+02**	**4.6E+02**
Hydrogen Sulfide	0	--	2.0E+00	--	--	--	1.6E+01	--	--	--	5.0E-01	--	--	--	1.1E+01	--	--	**--**	**1.1E+01**	**--**	**--**
Indeno (1,2,3-cd) pyrene [C]	0	--	--	3.8E-02	1.8E-01	--	--	5.3E+00	2.5E+01	--	--	3.8E-03	1.8E-02	--	--	5.3E-01	2.5E+00	**--**	**--**	**5.3E-01**	**2.5E+00**
Iron	0	--	--	3.0E+02	--	--	--	1.1E+04	--	--	--	3.0E+01	--	--	--	1.1E+03	--	**--**	**--**	**1.1E+03**	**--**
Isophorone[C]	0	--	--	3.5E+02	9.6E+03	--	--	4.9E+04	1.3E+06	--	--	3.5E+01	9.6E+02	--	--	4.9E+03	1.3E+05	**--**	**--**	**4.9E+03**	**1.3E+05**
Kepone	0	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	**--**	**0.0E+00**	**--**	**--**
Lead	0	2.3E+02	2.6E+01	1.5E+01	--	1.6E+03	2.1E+02	5.3E+02	--	5.3E+01	5.9E+00	1.5E+00	--	9.8E+02	1.3E+02	5.3E+01	--	**9.8E+02**	**1.3E+02**	**5.3E+01**	**--**
Malathion	0	--	1.0E-01	--	--	--	8.2E-01	--	--	--	2.5E-02	--	--	--	5.7E-01	--	--	**--**	**5.7E-01**	**--**	**--**
Manganese	12.6	--	--	5.0E+01	--	--	--	1.3E+03	--	--	--	1.6E+01	--	--	--	1.4E+02	--	**--**	**--**	**1.4E+02**	**--**
Mercury	0.0024	1.4E+00	7.7E-01	- -	- -	9.5E+00	6.3E+00	- -	- -	3.5E-01	1.9E-01	- -	--	6.5E+00	4.4E+00	- -	--	**6.5E+00**	**4.4E+00**	**- -**	**- -**
Methyl Bromide	0	--	--	4.7E+01	1.5E+03	--	--	1.7E+03	5.3E+04	--	--	4.7E+00	1.5E+02	--	--	1.7E+02	5.3E+03	**--**	**--**	**1.7E+02**	**5.3E+03**
Methylene Chloride [C]	0	--	--	4.6E+01	5.9E+03	--	--	6.4E+03	8.3E+05	--	--	4.6E+00	5.9E+02	--	--	6.4E+02	8.3E+04	**--**	**--**	**6.4E+02**	**8.3E+04**
Methoxychlor	0	--	3.0E-02	1.0E+02	--	--	2.4E-01	3.5E+03	--	--	7.5E-03	1.0E+01	--	--	1.7E-01	3.5E+02	--	**--**	**1.7E-01**	**3.5E+02**	**--**
Mirex	0	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	**--**	**0.0E+00**	**--**	**--**
Nickel	1.9	2.9E+02	3.1E+01	6.1E+02	4.6E+03	1.9E+03	2.4E+02	2.1E+04	1.6E+05	6.8E+01	8.8E+00	6.3E+01	4.6E+02	1.2E+03	1.6E+02	2.1E+03	1.6E+04	**1.2E+03**	**1.6E+02**	**2.1E+03**	**1.6E+04**
Nitrate (as N)	0	--	--	1.0E+04	--	--	--	3.5E+05	--	--	--	1.0E+03	--	--	--	3.5E+04	--	**--**	**--**	**3.5E+04**	**--**
Nitrobenzene	0	--	--	1.7E+01	6.9E+02	--	--	6.0E+02	2.4E+04	--	--	1.7E+00	6.9E+01	--	--	6.0E+01	2.4E+03	**--**	**--**	**6.0E+01**	**2.4E+03**
N-Nitrosodimethylamine[C]	0	--	--	6.9E-03	3.0E+01	--	--	9.7E-01	4.2E+03	--	--	6.9E-04	3.0E+00	--	--	9.7E-02	4.2E+02	**--**	**--**	**9.7E-02**	**4.2E+02**
N-Nitrosodiphenylamine[C]	0	--	--	3.3E+01	6.0E+01	--	--	4.6E+03	8.4E+03	--	--	3.3E+00	6.0E+00	--	--	4.6E+02	8.4E+02	**--**	**--**	**4.6E+02**	**8.4E+02**
N-Nitrosodi-n-propylamine[C]	0	--	--	5.0E-02	5.1E+00	--	--	7.0E+00	7.1E+02	--	--	5.0E-03	5.1E-01	--	--	7.0E-01	7.1E+01	**--**	**--**	**7.0E-01**	**7.1E+01**
Nonylphenol	0	2.8E+01	6.6E+00	--	--	1.9E+02	5.4E+01	--	--	7.0E+00	1.7E+00	--	--	1.3E+02	3.7E+01	--	--	**1.3E+02**	**3.7E+01**	**--**	**--**
Parathion	0	6.5E-02	1.3E-02	--	--	4.4E-01	1.1E-01	--	--	1.6E-02	3.3E-03	--	--	3.0E-01	7.4E-02	--	--	**3.0E-01**	**7.4E-02**	**--**	**--**
PCB Total[C]	0	--	1.4E-02	6.4E-04	6.4E-04	--	1.1E-01	9.0E-02	9.0E-02	--	3.5E-03	6.4E-05	6.4E-05	--	7.9E-02	9.0E-03	9.0E-03	**--**	**7.9E-02**	**9.0E-03**	**9.0E-03**
Pentachlorophenol [C]	0	8.7E+00	6.7E+00	2.7E+00	3.0E+01	5.9E+01	5.5E+01	3.8E+02	4.2E+03	2.2E+00	1.7E+00	2.7E-01	3.0E+00	4.0E+01	3.8E+01	3.8E+01	4.2E+02	**4.0E+01**	**3.8E+01**	**3.8E+01**	**4.2E+02**
Phenol	0	--	--	1.0E+04	8.6E+05	--	--	3.5E+05	3.0E+07	--	--	1.0E+03	8.6E+04	--	--	3.5E+04	3.0E+06	**--**	**--**	**3.5E+04**	**3.0E+06**
Pyrene	0	--	--	8.3E+02	4.0E+03	--	--	2.9E+04	1.4E+05	--	--	8.3E+01	4.0E+02	--	--	2.9E+03	1.4E+04	**--**	**--**	**2.9E+03**	**1.4E+04**
Radionuclides	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**--**	**--**	**--**	**--**
Gross Alpha Activity (pCi/L)	0	--	--	1.5E+01	--	--	--	5.3E+02	--	--	--	1.5E+00	--	--	--	5.3E+01	--	**--**	**--**	**5.3E+01**	**--**
Beta and Photon Activity (mrem/yr)	0	--	--	4.0E+00	--	--	--	1.4E+02	--	--	--	4.0E-01	--	--	--	1.4E+01	--	**--**	**--**	**1.4E+01**	**--**
Radium 226 + 228 (pCi/L)	0	--	--	5.0E+00	--	--	--	1.8E+02	--	--	--	5.0E-01	--	--	--	1.8E+01	--	**--**	**--**	**1.8E+01**	**--**
Uranium (ug/l)	0	--	--	3.0E+01	--	--	--	1.1E+03	--	--	--	3.0E+00	--	--	--	1.1E+02	--	**--**	**--**	**1.1E+02**	**--**

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				**Most Limiting Allocations**			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	**Acute**	**Chronic**	**HH (PWS)**	**HH**
Selenium, Total Recoverable	0.6	2.0E+01	5.0E+00	1.7E+02	4.2E+03	1.3E+02	3.6E+01	6.0E+03	1.5E+05	5.5E+00	1.7E+00	1.8E+01	4.2E+02	9.0E+01	2.6E+01	6.0E+02	1.5E+04	**9.0E+01**	**2.6E+01**	**6.0E+02**	**1.5E+04**
Silver	0	8.6E+00	--	--	--	5.8E+01	--	--	--	1.9E+00	--	--	--	3.5E+01	--	--	--	**3.5E+01**	**--**	**--**	**--**
Sulfate	0	--	--	2.5E+05	--	--	--	8.8E+06	--	--	--	2.5E+04	--	--	--	8.8E+05	--	**--**	**--**	**8.8E+05**	**--**
1,1,2,2-Tetrachloroethane[C]	0	--	--	1.7E+00	4.0E+01	--	--	2.4E+02	5.6E+03	--	--	1.7E-01	4.0E+00	--	--	2.4E+01	5.6E+02	**--**	**--**	**2.4E+01**	**5.6E+02**
Tetrachloroethylene[C]	0	--	--	6.9E+00	3.3E+01	--	--	9.7E+02	4.6E+03	--	--	6.9E-01	3.3E+00	--	--	9.7E+01	4.6E+02	**--**	**--**	**9.7E+01**	**4.6E+02**
Thallium	0	--	--	2.4E-01	4.7E-01	--	--	8.4E+00	1.7E+01	--	--	2.4E-02	4.7E-02	--	--	8.4E-01	1.7E+00	**--**	**--**	**8.4E-01**	**1.7E+00**
Toluene	0	--	--	5.1E+02	6.0E+03	--	--	1.8E+04	2.1E+05	--	--	5.1E+01	6.0E+02	--	--	1.8E+03	2.1E+04	**--**	**--**	**1.8E+03**	**2.1E+04**
Total dissolved solids	0	--	--	5.0E+05	--	--	--	1.8E+07	--	--	--	5.0E+04	--	--	--	1.8E+06	--	**--**	**--**	**1.8E+06**	**--**
Toxaphene [C]	0	7.3E-01	2.0E-04	2.8E-03	2.8E-03	4.9E+00	1.6E-03	3.9E-01	3.9E-01	1.8E-01	5.0E-05	2.8E-04	2.8E-04	3.4E+00	1.1E-03	3.9E-02	3.9E-02	**3.4E+00**	**1.1E-03**	**3.9E-02**	**3.9E-02**
Tributyltin	0	4.6E-01	7.2E-02	--	--	3.1E+00	5.9E-01	--	--	1.2E-01	1.8E-02	--	--	2.1E+00	4.1E-01	--	--	**2.1E+00**	**4.1E-01**	**--**	**--**
1,2,4-Trichlorobenzene	0	--	--	3.5E+01	7.0E+01	--	--	1.2E+03	2.5E+03	--	--	3.5E+00	7.0E+00	--	--	1.2E+02	2.5E+02	**--**	**--**	**1.2E+02**	**2.5E+02**
1,1,2-Trichloroethane[C]	0	--	--	5.9E+00	1.6E+02	--	--	8.3E+02	2.2E+04	--	--	5.9E-01	1.6E+01	--	--	8.3E+01	2.2E+03	**--**	**--**	**8.3E+01**	**2.2E+03**
Trichloroethylene [C]	0	--	--	2.5E+01	3.0E+02	--	--	3.5E+03	4.2E+04	--	--	2.5E+00	3.0E+01	--	--	3.5E+02	4.2E+03	**--**	**--**	**3.5E+02**	**4.2E+03**
2,4,6-Trichlorophenol [C]	0	--	--	1.4E+01	2.4E+01	--	--	2.0E+03	3.4E+03	--	--	1.4E+00	2.4E+00	--	--	2.0E+02	3.4E+02	**--**	**--**	**2.0E+02**	**3.4E+02**
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	5.0E+01	--	--	--	1.8E+03	--	--	--	5.0E+00	--	--	--	1.8E+02	--	**--**	**--**	**1.8E+02**	**--**
Vinyl Chloride[C]	0	--	--	2.5E-01	2.4E+01	--	--	3.5E+01	3.4E+03	--	--	2.5E-02	2.4E+00	--	--	3.5E+00	3.4E+02	**--**	**--**	**3.5E+00**	**3.4E+02**
Zinc	2.47	1.8E+02	1.8E+02	7.4E+03	2.6E+04	1.2E+03	1.5E+03	2.6E+05	9.1E+05	4.5E+01	4.5E+01	7.4E+02	2.6E+03	7.9E+02	9.6E+02	2.6E+04	9.1E+04	**7.9E+02**	**9.6E+02**	**2.6E+04**	**9.1E+04**

Notes:

1. All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
2. Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
3. Metals measured as Dissolved, unless specified otherwise
4. "C" indicates a carcinogenic parameter
5. Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information.
   Antidegradation WLAs are based upon a complete mix.
6. Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic
   = (0.1(WQC - background conc.) + background conc.) for human health
7. WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens and Harmonic Mean for Carcinogens. To apply mixing ratios from a model set the stream flow equal to (mixing ratio - 1), effluent flow equal to 1 and 100% mix.

Metal	Target Value (SSTV)
Antimony	2.0E+01
Arsenic	3.4E+01
Barium	6.9E+03
Cadmium	5.5E+00
Chromium III	3.6E+02
Chromium VI	3.0E+01
Copper	3.6E+01
Iron	1.1E+03
Lead	5.3E+01
Manganese	1.4E+02
Mercury	2.6E+00
Nickel	9.5E+01
Selenium	1.5E+01
Silver	1.4E+01
Zinc	3.1E+02

Note: do not use QL's lower than the minimum QL's provided in agency guidance

Attachment E

Dominion Comments on Virginia City Hybrid Energy Center (VCHEC)
Preliminary Draft VPDES Permit VA0092746 and Fact Sheet

Comments on Part I – Limitations and Monitoring Requirements:

Part I.A.1. The final, combined discharge at Outfall 001 is not currently being monitored for flow on a continuous basis. The Town of St. Paul is continuously monitoring their flow on their individual discharge. VCHEC also agrees to continuously monitor our flow on our individual discharge (prior to commingling with St. Paul). We propose that Condition A.1 in both VCHEC and St. Paul's permits be modified to state that the flow from Outfall 001 will be calculated by adding the combined flows from St. Paul and VCHEC (when both VCHEC and the Town of St. Paul are discharging). When VCHEC is not discharging, the flow from Outfall 001 will be equivalent to the flow from St. Paul's Outfall 102. In the case when VCHEC does not discharge during a particular month, we request that VCHEC be allowed to add verbiage in the comments section of the DMR that states the following or equivalent: "No flow was contributed to Outfall 001 from the VCHEC facility during the timeframe covered by this DMR. As such, monitoring is not required pursuant to permit condition I.A.1."

DEQ Response: The proposed permit WILL REQUIRE daily monitoring and quarterly reporting of total flow of the final effluent at outfall 001. The reported values may be calculated using the sum of data from the St. Paul operation and the measured data from the VCHEC operation. As this permit includes analytical monitoring of the combined flow, and the assumptions used to develop the permit conditions are based on the combined flow, it is necessary to gather and report representative data on the collective discharge regardless of the VCHEC contribution. Therefore flow reporting at outfall 001 will be a component of this permit.

Proposed Changes: The draft permit has been modified to reflect the sample type "calculated", and the frequency of monitoring to be 1/Day. Reporting for DMR purposes will be proposed to be "quarterly" to coincide with the WET monitoring schedule. DMR reporting of flow will be a calculated monthly average and daily maximum value of total flow from outfall 001.

Part I.A.1. It is unlikely that VCHEC will have discharges that last for durations to exceed 24 hours. As such, Dominion requests that "24HC" Sample Type be changed for all parameters to *"Hourly Composite (HC)"* and that verbiage be added to the effect: *"When discharging, hourly composite samples shall be taken for the duration of the discharge or for a maximum of 24 hours, whichever is less."*

DEQ Response: The staff recognizes that the flow from the VCHEC facility is intermittent, and may not last for 24 hours, but discharge monitoring should

reflect conditions throughout the discharge period. A composite sample will continue to be required, but will allow for discharges of shorter duration.

Proposed Changes: The Part I.A of the draft permit has been modified to include a footnote which states: *"The composite sample required for this reporting shall consist of a composite of subsamples at taken hourly intervals for the duration of the discharge or for a maximum of 24 hours, whichever is less."*

Part I.A.2 VCHEC agrees to conduct continuous flow monitoring on Outfall 103 when discharging. However, A.2 needs to be updated for consistency with A.1. As requested in Comment A.1 above, we request that the "24HC Sample Type be changed for all parameters to *"Hourly Composite (HC)"* and that verbiage be added to the effect: *"When discharging, hourly composite samples shall be taken for the duration of the discharge or for a maximum of 24 hours, whichever is less."*

DEQ Response: The staff recognizes that the flow from the VCHEC facility is intermittent, and may not last for 24 hours, but discharge monitoring should reflect conditions throughout the discharge period. A composite sample will continue to be required, but will allow for discharges of shorter duration.

Proposed Changes: The Part I.A of the draft permit has been modified to include a footnote which states: *"The composite sample required for this reporting shall consist of a composite of subsamples at taken hourly intervals for the duration of the discharge or for a maximum of 24 hours, whichever is less."*

Part I.B.5 Instead of being required to notify DEQ *"as soon as they know or have reason to believe"*, Dominion proposes this language be modified to read: *"The permittee shall notify the Department within 24 hours of becoming aware:"*

DEQ Response: This section is taken verbatim from 9VAC25-31-200.A which identifies additional conditions applicable to specified categories of VPDES permits. Since this is a direct reference to the regulation, the language included in the permit is not subject to change.

Proposed Changes: None

Part I.B.7 The quantification levels (QLs) established in Condition A.7 for Iron and Zinc are currently below Dominion's system laboratory QLs. Therefore, we request that the Iron and Zinc QLs be raised to 0.25 mg/L and 30 ug/L, respectively. These QLs match Dominion's system laboratory QLs, and should be low enough to demonstrate compliance with the respective water quality based limits.

DEQ Response: The staff has reviewed your comments and confers that the proposed change in QL's is sufficient to demonstrate compliance.

Proposed Changes: The referenced QL's have been modified as requested.

Part I.B.9. Due to the anticipation that discharges from VCHEC will be infrequent, it may not be possible to conduct whole effluent toxicity sampling for 10 events from internal Outfall 103 before the end of the permit term. Dominion proposes the following change (or equivalent) in the verbiage: *"The monitoring shall be conducted on a quarterly basis, when both VCHEC and the Town of St. Paul are discharging, in conjunction with the whole effluent toxicity monitoring requirements of Part I.C, for the life of this permit term or until a maximum of 10 data sets are collected."* We request that the last two paragraphs in this condition be deleted. The 3rd paragraph is not applicable to this permit, and the last paragraph is no longer required based upon the proposed verbiage change.

DEQ Response: The staff realizes that Dominion anticipates that discharges from 103 will be infrequent and understands that water quality criteria monitoring may not be possible every quarter. Consequently the required 10 samples may not be collected during the permit term. DEQ also intends for the WET testing to reflect the VCHEC component; therefore WET testing will only be required during the quarters in which there is a VCHEC discharge. Should VCHEC manage their wastewater in a manner that does not result in a discharge during the calendar quarter, no WET testing and NO water quality criteria monitoring will be required for that quarter.

Proposed Changes: In order to make the intent of the monitoring requirement clearer, the condition has been changed to reflect the following language: "*The monitoring shall be conducted quarterly in conjunction with the whole effluent toxicity monitoring requirements of Part I.B.11 for the life of the permit, or until at least 10 sets of data results are collected."* In addition the last two paragraphs were deleted as requested.

Part I.B.11. Update for consistency with B.9. As stated in comment B.9 above, we request that the biological monitoring requirements be revised to state that "the permittee shall conduct quarterly acute and chronic toxicity tests, when both VCHEC and the Town of St. Paul are discharging, for the life of this permit term or until a maximum of 10 data sets are collected".

DEQ Response: Whole effluent toxicity testing will be required during any quarter during which VCHEC results in a discharge, until a suitable data set has been collected. The tests shall be initiated during the period when VCHEC is

discharging, but the staff realizes that, given the anticipated intermittent nature of the discharge, subsequent renewal samples for the chronic toxicity tests may only contain wastewater from the St Paul facility.

Proposed Changes: The condition has been modified to include the following: **"***The permittee shall collect composite samples of final effluent from outfall 001 during periods when both VCHEC and the Town of St. Paul are contributing flow to the combined outfall. These tests shall be initiated with composite samples from the combined effluent, but in cases where the VCHEC discharges cease, subsequent samples for the test renewals may be obtained from samples of the discharge from the St. Paul wastewater treatment plant."*

Part I.B.11. As VCHEC does not have flow monitoring at Outfall 001, conducting flow-proportioned sampling will not be feasible. Dominion proposes the requirement be changed to read as follows: "The permittee shall collect samples of the final effluent from Outfall 001 during periods when both VCHEC and the Town of St. Paul are contributing flow to the combined outfall."

DEQ Response: See above response…

<u>Comments on VCHEC Preliminary Draft VPDES Permit Fact Sheet:</u>

Item 12.A There seems to be a bit of confusion in this description between the cooling tower (servicing equipment cooling) and the air cooled condensers (servicing the boilers). A description for the cooling towers might read thusly:

Cooling Tower Blowdown – A cooling tower is used as one stage of a two-stage system to cool equipment used in the boiler building. The water within the cooling tower system, known as Auxiliary Cooling Water (ACW), is used to cool a closed-loop cooling system, known as Closed Cooling Water (CCW), through a series of heat exchangers. The CCW subsequently cools the equipment. This configuration is necessary due to the high water quality required for contact with the equipment to be cooled. Feed water for the ACW system is estimated at 65 gpm and supplied from the Makeup Water system (post ultrafiltration). Water is discharged (blowdown) from the ACW system to maintain water quality and prevent cycling up of contaminants. Blowdown is estimated as a continuous 18 gpm and is directed to the Wastewater Treatment system. An estimated 47 gpm of water is lost to evaporation from the ACW.

Blowdown from the boilers enters the wastewater treatment system as part of the oil/water separator discharge and is appropriately identified in 12. B.

DEQ Response: After revisiting the description of the pollutant sources the DEQ staff concurs that the section did not clearly represent the conditions at the facility.

Proposed Changes: Fact Sheet Item 12.A has been modified to reflect the suggestions in the comment, and the Boiler Blow down description has been segregated and described in Item 12.B.

Item 12.C Nowhere does the fact sheet include any information regarding our ability to send wastewater to the Leacheate Pond for future reuse. I think that should be outlined explicitly to ensure that we don't get dinged during an audit. This could be corrected as easily as placing a statement such as "*The Leachate Pond may be used to store pretreated wastewater for future reuse by back flowing the water from the Reclaim Water Storage Tank through the Leachate Pond discharge line and into the pond.*" in 12.C.

DEQ Response: After revisiting the description of the wastewater management processes, the DEQ staff concurs that the section did not clearly represent the conditions at the facility.

Proposed Changes: Fact Sheet Item 14 (Internal Recycling and Reuse) has been modified to reflect the suggestions in the comment.

12. D. & E. These processes have continuous flow to the wastewater treatment systems while they are operating. The cleaning processes identified in the descriptions are in addition to the continuous flow estimates. This is not a significant change, but is not made explicit.

DEQ Response: noted.

Proposed Changes: These sections have been changed to explicity identify that there is a continuous discharge component.

In addition to the above comments, we also have the following comments on both the draft permit and fact sheet regarding the water quality-based limits that DEQ is proposing for Outfall 103:

- We are not sure why a limit for Total Residual Chlorine (TRC) is being included in the permit, since chlorine is not used in the wastewater treatment process and is not anticipated to be a component of the ultimate discharge. All analytical results for TRC were below detection. Therefore, even though TRC was included in the evaluation, we

do not believe a limit should be established in the permit. Since the presence of TRC was not detected in the discharge, we request that the proposed limit for TRC be removed from the permit. (A.2 in draft permit and 28.G in draft fact sheet)

DEQ Response: A proposed limit for Total Residual Chlorine is included in the permit because: 1.) It is a component of the Effluent Limitation Guidelines for the category of discharge; 2.) Chlorine is used in the process as a water treatment chemical in the CIP process of the ultra-filtration system, and; 3) the receiving waters require a halogen ban.

Proposed Changes: none

- In developing the limits for copper, DEQ developed acute and chronic wasteload allocations (WLAs) for both parameters based on Tier 2 antidegradation (i.e., 25% of the remaining assimilative capacity). DEQ appears to have developed the WLAs appropriately; however, you have imposed the chronic WLA as the maximum daily and monthly average limits. This is not appropriate. Both the Maximum Daily and Monthly Average limits should be set equal to the acute WLA of 90 ug/L – this is based on the use of DEQ's own reasonable potential software. We request that the limits be modified accordingly. (A.2 in draft permit and 28.I in draft fact sheet)

  DEQ Response: The staff has reviewed the calculations for the copper WLA and confers that the appropriate limitations shall be 90 ug/l daily maximum and 90 ug/l monthly average.

  Proposed Changes: The limitations for copper have been changed in Part I.A of the draft permit and in Item 28.I of the Fact Sheet.

- DEQ has imposed a Total Chromium limit based on the WLAs for hexavalent chromium. Dominion would prefer that DEQ include a limit specifically for hexavalent chromium, and include a footnote that compliance with the limit may be demonstrated through monitoring for Total Chromium and assuming a one-to-one relationship. (A.2 in draft permit and 28.H in draft fact sheet)

  DEQ Response: DEQ confers with your request.

  Proposed Changes: The Parameter listing on Part I.A has been changed to Chromium VI, and a footnote has been added to Part I.A to allow total chromium monitoring to assess compliance.

- DEQ has imposed an iron limit of 960 ug/L based on the hh WLA. DEQ's spreadsheet, however, shows the hh WLA to be 1,100. At a minimum, we request that DEQ change

the limit to be equal to the Effluent Limit Guideline (ELG) of 1,000 ug/L. (A.2 in draft permit and 28.J in draft fact sheet)

DEQ Response: DEQ confers with your request.

Proposed Changes: Changes have been made to A.2 in draft permit and 28.J in draft fact sheet

We also have several editorial comments on the draft fact sheet. A red-lined copy of the draft fact sheet is being provided to address these comments.

DEQ Response: Staff has reviewed the proposed edits.

Proposed Changes: Changes made as appropriate when needed for technical accuracy or when necessary for clarity.

Fact Sheet
Attachment F

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
6669 Short Lane
Gloucester, Virginia 23061

July 25, 2013

Mr. Mark Trent
Southwest Regional Office
Virginia Department of Environmental Quality
355-A Deadmore Street
Abingdon, VA 24210

Re: Virginia City Hybrid Energy Center, Permit VA0092746, Wise County, VA, Project #2013-I-2035

Dear Mr. Trent:

The U.S. Fish and Wildlife Service (Service) has reviewed the June 25, 2013, information provided by the Virginia Department of Environmental Quality (VDEQ) regarding the referenced project. The proposed permit issuance for the Virginia City Hybrid Energy Center (VCHEC) would authorize the existing discharge of 0.72 million gallons per day (mgd) of treated industrial wastewater and treated coal ash landfill leachate to the Clinch River. The following comments are provided under provisions of the Endangered Species Act (ESA) of 1973 (16 U.S.C. 1531-1544, 87 Stat. 884), as amended.

The Clinch River is federally designated critical habitat for the slender chub (*Erimystax cahni*), purple bean (*Villosa perpurpurea*), oyster mussel (*Epioblasma capsaeformis*), Cumberlandian combshell (*Epioblasma brevidens*), and rough rabbitsfoot (*Quadrula cylindrica strigillata*).

The following federally listed endangered freshwater mussels are known to occur in the Clinch River near the discharge point: snuffbox (*Epioblasma triquetra*), spectaclecase (*Cumberlandia monodonta*), sheepnose (*Plethobasus cyphyus*), fanshell (*Cyprogenia stegaria*), dromedary pearlymussel (*Dromus dromas*), shiny pigtoe (*Fusconaia cor*), fine-rayed pigtoe (*Fusconaia cuneolus*), cracking pearlymussel (*Hemistena lata*), birdwing pearlymussel (*Lemiox rimosus*), Cumberland monkeyface (*Quadrula intermedia*), Appalachian monkeyface (*Quadrula sparsa*), Cumberlandian combshell, rough rabbitsfoot, oyster mussel, and purple bean. The federally listed threatened yellowfin madtom (*Noturus flavipinnis*) is also known to occur in the Clinch River near the point of discharge.

The following freshwater mussels, proposed for Federal listing as endangered, are known to occur in the Clinch River near the discharge point: fluted kidneyshell (*Ptychobranchus*

subtentum) and slabside pearlymussel (*Lexingtonia dolabelloides*). The Clinch River has been proposed as designated critical habitat for both species.

The Service acknowledges that the VCHEC has taken steps to reduce the amount and toxicity of its effluent and notes the continuation of monitoring of the 5 instream stations by VDEQ through 2015 and the continuation of the whole effluent toxicity testing for 10 additional quarters.

As detailed below, the Service is concerned about:

1. Compliance with the 2011 biological opinion.
2. Levels of radionuclides in the effluent.
3. Levels of copper in the effluent.
4. Data inputs to calculate effluent limits and monitoring.
5. Antibacksliding.
6. Quantification and detection limits.

1. Compliance with the 2011 Biological Opinion

On May 28, 2011, the Service issued a biological opinion (2010-I-0043) on the diffuser which disperses the effluent from VCHEC and the nearby St. Paul Wastewater Treatment Plant (WWTP). Because the biological opinion focused on the effects of this effluent, and since VCHEC is currently permitted to discharge effluent through the diffuser, compliance with the biological opinion is necessary for VCHEC to be in compliance with the ESA.

While the entire biological opinion needs to be followed to ensure ESA compliance, the two conditions below from the biological opinion are directly relevant to the permitted effluents from VCHEC and the St. Paul WWTP and we recommend that the wording below become permit conditions for both VCHEC and St. Paul permits:

a. Implement monitoring of the effluent discharge for the following constituents: mercury, total dissolved solids, sulfate, copper, aluminum, barium, cadmium, lead, thallium, zinc, and cyanide at a frequency of once per month for the life of the project. Send the results to the Service. Implement monthly WET testing. The results should be evaluated at the end of the first five years to determine if frequency of monitoring should be altered. Monitoring at this frequency may be discontinued if data show that concentrations are consistent over time, but monthly monitoring may subsequently be reinstated if there are indications of reduced consistency. During the first five years, at quarterly frequency, and annually thereafter, evaluate the monitoring results to determine if contaminant concentrations are consistent with predicted discharge concentrations. Send the results to the Service. Results of concentration monitoring and loading calculations will be evaluated against known thresholds or observed effects to determine whether those concentrations and/or loadings affect the species in the Clinch River at, more than, or less than the level anticipated in the 2011 biological opinion.

b. Effluent discharge should be planned, to the maximum extent practicable, to coincide with river flow conditions that will dilute contaminants to concentrations that will avoid adverse effects. A discharge operational plan that seeks to limit discharges of the contaminants of concern during low flow periods should be developed by St. Paul WWTP and VCHEC, and submitted to the Service for review and approval.

The requirement for monthly testing in condition "a" allows the Service to assess potential effects to listed and proposed species, and designated and proposed critical habitat. Condition "b" will limit discharges during low flow periods when listed and proposed species are more sensitive to additional stress from components of the effluent.

The Service requests notification that these facilities are in compliance with the above two conditions. The Service requests that monitoring data required under the biological opinion be used to assess/develop current and future permit limits.

2. Levels of Radionuclides in the Effluent

The U.S. Environmental Protection Agency (EPA) 1986 report "Effects of radiation on aquatic organisms and radiobiological methodologies for effects assessments" states, "when an organism has been exposed to ionizing radiation, energy absorbed in tissues induces atomic changes. When molecular changes are induced in DNA, single- and double- strand breaks result in such effects as mutation, chromosomal breakage, chromosomal rearrangement, and potentially, point mutations."

The Service does not currently have sufficient information on the type and quantity of radiation emitted from this facility to compare the amount of ionizing radiation in the VCHEC effluent to doses found in the literature. However, the developing eggs and young of year freshwater fishes are "among the most sensitive tested organisms" to the effects of ionizing radiation (Eisler 1996). "Death was observed at acute doses of 0.3-0.6 Gray (Gy) and adverse effects on physiology and metabolism at chronic daily exposure rates of 0.01 Gy" (Eisler 1996). The unit Gy is defined as the absorbed energy per unit of mass tissue.

The original permit issuance did not include an assessment of radiological data (M. Trent, VDEQ, telephone conversation with M. Byrne, Service, July 11, 2013). Water quality criteria values do not exist for ionizing radiation in the Commonwealth of Virginia. However, EPA (2000) has developed standards to protect drinking water from ionizing radiation. The Service requests an assessment of permit limits based on the EPA's drinking water-based standards for ionizing radiation.

In the "Inventory of Radiological Methodologies for Sites Contaminated with Radioactive Materials," EPA (2006) notes, "The drinking water regulations list the maximum contaminant level (MCL) for each radionuclide as the concentration (in pico Curies per Liter (pCi/L)) that would result in a dose of 4 millirems per year (mrem/yr) if ingested…To avoid exceeding the MCL, the total gross alpha or gross beta radionuclide activities should not exceed 15 pCi/L."

Test results included in the permit application for VCHEC show that the effluent is not meeting the EPA's drinking water MCL for beta radionuclides (Dominion Resources Services, Inc. 2012). However, information in the permit fact sheet and the permit application are inconsistent. Section 20 of the permit fact sheet, "VCHEC Discharge Water Quality," provides data on three separate sampling events, dated July 9, 2012, July 30, 2012, and August 13, 2012 (VDEQ 2013). The chart on this page shows a value of 6.0 pCi/L total beta radionuclides measured on the first sampling date. The chart indicates that total alpha and beta radionuclides were not reported for the other two dates.

The permit application shows more robust testing data. A sample collected on July 30, 2012 and analyzed by Eberline Analytical, contained 16.2 pCi/L total beta radionuclides (#12-08009-03). A duplicate sample, collected on the same date (#12-08009-04), contained 17.4 pCi/L total beta radionuclides (Dominion Resources Services, Inc. 2012, p. 122). A sample collected on August 13, 2012 analyzed by Eberline Analytical (#12-08068-03), contained 24.1 pCi/L total beta radionuclides, and the duplicate sample (12-0868-04) contained 24.4 pCi/L total beta radionuclides (Dominion Resources Services, Inc. 2012, p. 17). All four of these values exceed the MCL value of 15 pCi/L beta radionuclides.

As previously mentioned, fish species are sensitive to the effects of ionizing radiation. The yellowfin madtom occurs near the point of discharge and the Clinch River is designated critical habitat for the slender chub. The Service requests that VDEQ limit radionuclide levels, specifically beta radionuclides, in the VCHEC permit to ensure compliance with the MCL under the EPA's drinking water regulations (EPA 2000). The Service also recommends an examination of radionuclide levels in the effluent to ensure that habitat remains suitable for these species. The Service requests the results of radionuclide levels in the effluent. The Service recommends that the permittee consult with the Service to determine appropriate WET test endpoints to capture the potential effects of ionizing radiation to the yellowfin madtom and slender chub.

3. Levels of Copper in the Effluent

Copper is toxic to mussels, especially to early lifestages (Wang et al. 2007a, b). In laboratory tests of copper toxicity using early lifestages of mussels, Wang et al. (2007a, b) reported effects at mean concentrations of 23 micrograms per Liter (ug/L) and as low as 5.9 ug/L. Metals, such as copper, are persistent in the environment (Miettinen 1977), remaining available for uptake, transport, and transformation by organisms for long periods of time (Hoover 1978).

VDEQ is currently not using the most restrictive waste load allocation (WLA) for copper concentrations permitted in the effluent from VCHEC. VDEQ (2013) notes in Section 28. Effluent Limitations (I) Copper: "The most restrictive WLA based on chronic toxicity is 68 ug/l. However, the ELG's [effluent limitation guidelines] for steam electric power generation facilities include an effluent limitation of 1000 ug/l for the discharge. The statistical analysis using the ELG level of 1000 ug/l indicates that an effluent limitation of 90 ug/l is required."

To minimize toxicity to mussels from copper, the Service recommends adoption of 68 ug/L as the effluent limitation based on the more restrictive chronic toxicity WLA.

4. Data Inputs to Calculate Effluent Limits and Monitoring

After reviewing data inputs in the draft VCHEC permit, the Service is concerned with VDEQ's use of dry weather monitoring results and the exclusion of coal ash landfill leachate as a wastewater stream in developing effluent limits. Developing effluent limits using dry weather monitoring results and excluding leachate as a wastewater stream may adversely affect listed mussels and fish, proposed mussels, and designated and proposed critical habitat.

Dry Weather Monitoring

'Dry weather' monitoring results (data on three separate sampling events, dated July 9, 2012, July 30, 2012, and August 13, 2012) were used to characterize which compounds have reasonable potential to exceed permit limits.

The Service requests two samples per year for wet-weather monitoring of arsenic, barium, and selenium concentrations in the VCHEC effluent. These three compounds were detected in the effluent during dry weather months and the Service seeks to ensure that higher concentrations are not moving through the treatment system when there are higher volumes of leachate from the coal ash landfill. The results of this monitoring should be shared with the Service as they become available.

Landfill Leachate

The fact sheet section 26(A), VDEQ (2013, p. 17) notes that the permit writers referenced EPA's (2010) guidance document "NPDES Permitting of Wastewater Discharges from Flue Gas Desulfurization and Coal Combustion Residual Impoundments at Steam Electric Power Plants." VDEQ states that the "VCHEC facility handles all coal combustion residuals in a dry state, and no wastewater is produced from the ash handling and disposal process. Since no wastewater is produced as a result of the flue gas desulfurization system or ash transport and disposal systems, no additional effluent limitations are proposed."

The Service disagrees with this characterization of the waste stream. Coal combustion residual products (ash) from VCHEC are stored in the Curley Hollow Solid Waste Management Facility, and leachate from this landfill is treated at VCHEC, contributing to the effluent under the St. Paul industrial user permit (IUP), and will be part of the release in the VCHEC permit. Therefore, it is critical to recognize that wastewater is being produced as a result of the ash disposal system and additional effluent limitations may be necessary based on EPA's guidelines.

EPA (2010) contains a list of 12 trace and major elements that have the potential to be present in high concentrations in effluent from coal fly ash disposal areas. "The following pollutants may be expected to be found in CCR [coal combustion residual] effluent at concentrations that are greater than water quality criteria: aluminum, arsenic, cadmium, chromium, copper, iron, manganese, nickel, selenium, thallium, chloride, and nitrate/nitrite."

As requested in in the 2011 biological opinion, the Service expects monthly reports on the pollutants listed in item 1 of this letter. This list includes 4 of the elements listed above (aluminum, cadmium, copper, and thallium). The draft VCHEC permit contains limits for 3 of the elements listed above (copper, iron, and chromium). Therefore, the Service requests monitoring data on the remaining 6 elements for which permit limits do not exist *and* the Service is not already expecting test results: arsenic, manganese, nickel, selenium, chloride, and nitrate/nitrite. Because EPA has stated these 6 elements are likely to be present in effluent from coal fly ash disposal areas, the Service requests monitoring for these elements twice per year during wet weather months, when the likelihood is high that an effluent from this facility will contain a higher volume of leachate from the coal ash landfill.

5. Antibacksliding

Under an IUP issued by the St. Paul WWTP to VCHEC, the effluent from VCHEC had permit limits for cyanide, mercury, sulfate, ammonia, biological oxygen demand, and total dissolved solids (Town of St. Paul 2010). The draft VCHEC permit contains limits only for copper. The IUP limit for copper was 36.3 ug/L, and under the current VDEQ permit this level increases to 90 ug/L. Because no changes have occurred to the WWTP, or to the movement, quantity, or quality of wastewater, the Service views this higher permit limit (90 ug/L) as backsliding of previously attained water quality standards. The Service requests that the IUP permit limits be re-established for the current draft VDEQ VCHEC permit.

6. Quantification and Detection Limits

Per your suggestion (M. Trent, VDEQ, telephone conversation with M. Byrne, Service, July 11, 2013), the Service is including information on inconsistencies in quantification and detection limits in this letter. To ensure that VCHEC is able to report when a concentration of a specific chemical is of concern, the method detection limit (MDL) must be below the reporting limit (RL). However, Section 20 (VCHEC Discharge Water Quality) indicates that for dissolved and total barium, the MDL (38 ug/l) is above the RL (30 ug/l). The Service requests clarification on the MDL and RL of barium and highlights the necessity for the MDL to be below the RL.

Additionally, in Attachment E Part i.b.7, VDEQ responds to a request from VCHEC which states that the quantification limit (QL) of VCHEC lab is higher than the QL in the permit, so VCHEC requests for the QL to be raised for iron and zinc (VDEQ 2013). VDEQ approves of this change. The Service disagrees with the rationale of this change and recommends that VCHEC change their laboratory methodology to ensure compliance with the original QL for iron and zinc.

While the lower QL may suffice to determine compliance with water quality standards, it will not provide a thorough picture of instream water quality. For some metals, mussels are more sensitive and the Service needs to know the instream metal concentrations to ensure water quality standards are being met.

Conclusion

To ensure compliance with the ESA, both facilities (VCHEC and St. Paul WWTP) must abide by the requirements of the Service's 2011 biological opinion on the diffuser that both facilities utilize. Additionally, the Service requests VDEQ respond to each issue/recommendation identified above.

Developing the previously mentioned radionuclide limits and reverting to more stringent copper limits will help to avoid and minimize effects to federally proposed and listed species and proposed and designated critical habitat by reducing the amount of these contaminants in the effluent. The Service also recommends re-implementing previously developed limits for cyanide, mercury, sulfate, ammonia, biological oxygen demand, and total dissolved solids. Notify us if these recommendations are implemented.

If the more stringent radionuclide and copper limits will not be utilized in developing the effluent limits for this discharge, or if limits will not be implemented for cyanide, mercury, sulfate, ammonia, biological oxygen demand, and total dissolved solids, VDEQ should contact the Service to determine how to proceed with permit re-issuance to be in compliance with the ESA and ensure protection of federally proposed and listed species and proposed and designated critical habitat. The Service also recommends an assessment for additional effluent limitations as a result of the water flow coming from the ash disposal system. The Service requests a copy of any such analysis or assessment.

Should project plans change or if additional information on the distribution or biology of federally proposed or listed species or proposed or designated critical habitat becomes available, this determination may be reconsidered.

If you have any questions, please contact Margaret Byrne of this office at 413-253-8593, or via email at margaret_byrne@fws.gov.

Sincerely,

Cindy Schulz
Field Supervisor
Virginia Ecological Services

cc: EPA, Philadelphia, PA (Attn: Mark Smith)
SVFO, Abingdon, VA (Attn: Roberta Hylton)
VDGIF, Forest, VA (Attn: Brian Watson)
VDGIF, Richmond, VA (Attn: Amy Ewing)
VDCR, Richmond, VA (Attn: Rene Hypes)

Literature Cited

Dominion Resources Services, Inc. 2012. Application for Individual Virginia Pollutant Discharge Elimination System permit for Virginia City Hybrid Energy Center (VCHEC). 213pp.

Eisler, R. 1996. Radiation hazards to fish, wildlife, and invertebrates: a synoptic review. Contaminant Hazard Review Report #29. Patuxent Environmental Science Center, U.S. National Biological Service. Laurel, MD 20708

Environmental Protection Agency. 1986. Effects of radiation on aquatic organisms and radiobiological methodologies for effects assessments. EPA 520/1-85-016. Office of Radiation Programs. Washington, DC.

Environmental Protection Agency. 2006. Inventory of Radiological Methodologies for Sites Contaminated with Radioactive Materials. EPA 402-R-06-007. U.S. Environmental Protection Agency Office of Air and Radiation, Office of Radiation and Indoor Air, National Air and Radiation Environmental Laboratory. Montgomery, AL

Environmental Protection Agency. 2000. National Primary Drinking Water Regulations; Radionuclides; Final Rule. https://www.federalregister.gov/articles/2000/12/07/00-30421/national-primary-drinking-water-regulations-radionuclides-final-rule

Hoover, T.B. 1978. Inorganic species in water: ecological significance and analytical needs. U.S. Environmental Protection Agency, EPA-600/3-78-064.

Miettinen, J.K. 1977. Inorganic trace elements as water pollutants: their implications to the health of man and aquatic biota. Pages 113-136 *in* F. Coulston and E. Mrak, eds. Water quality proceedings of an international symposium. Academic Press, New York.

Town of St. Paul. 2010. Virginia City Hybrid Energy Center Industrial User Permit No. 2010-1. 22 pp. plus attachments.

Virginia Department of Environmental Quality. 2013. Virginia City Hybrid Energy Center Permit Fact Sheet (VA) Abingdon, VA. 28 pp. plus attachments.

Wang, N., C.G. Ingersoll, D.K. Hardesty, C.D. Ivey, J.L. Kunz, T.W. May, F.J. Dwyer, A.D. Roberts, T. Augspurger, C.M. Kane, R.J. Neves, and M.C. Barnhart. 2007a. Acute toxicity of copper, ammonia, and chlorine to glochidia and juveniles of freshwater mussels (*Unionidae*). Environmental Toxicology and Chemistry 26(10):2036-2047.

Wang, N., C.G. Ingersoll, I.E. Greer, D.K. Hardesty, C.D. Ivey, J.L. Kunz, W.G. Brumbaugh, F.J. Dwyer, A.D. Roberts, T. Augspurger, C.M. Kane, R.J. Neves, and M.C. Barnhart. 2007b. Chronic toxicity of copper and ammonia juvenile freshwater mussels (*Unionidae*). Environmental Toxicology and Chemistry 26(10):2048-2056.

Fact Sheet
Attachment G

COMMONWEALTH of VIRGINIA

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Douglas W. Domenech
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David K. Paylor
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August 28, 2013

Cindy Schulz, Field Supervisor
(cindy_schulz@fws.gov)
US Fish and Wildlife Service
Virginia Ecological Services
6669 Short Lane
Gloucester, VA 23061

Re: VPDES Permit No. VA0092746 - Virginia City Hybrid Energy Center and VPDES Permit No. VA0026221 - Town of St. Paul Wastewater Treatment Plant; Wise County, Virginia

Dear Ms. Schultz:

On July 25, 2013, The Department of Environmental Quality received your agency comments regarding the above referenced proposed permit actions. The staff has reviewed your comments, transmitted them to the facility owners and has incorporated them into the permit record. Where appropriate, the Department has modified the permit to incorporate your requests; however, many of the comments are beyond the scope and standard practices of our delegated regulatory program.

The following is a summary of the comments and the Department's responses:

A. **Town of St. Paul Wastewater Treatment Plant**

1. **Compliance with the 2011 Biological Opinion** – The Service requested that the recommendations of the 2011 Biological Opinion be incorporated into the VPDES permit requirements of the facility. Specifically, the service requested monthly chemical testing and monthly whole effluent toxicity testing, and recommended that the facility develop a "discharge operational plan" to limit the discharge from the operation during low stream flow periods.

   DEQ Response: The staff reviewed the extensive chemical and whole effluent toxicity data submitted with the application for reissuance of the permit, and concluded that the data does not indicate that under the established policies and practices of the VPDES program, there is a reasonable potential to violate any of the numeric or narrative water quality standards of the receiving stream. Furthermore, the Town of St. Paul Wastewater Treatment Plant is a small municipal facility which treats only domestic sewage and neither its size nor nature of the anticipated discharge necessitates the additional testing. Also, given the nature of flows from a

municipal collection system, it is inappropriate to require management of the discharge beyond that required for equalization of flows to meet the design capacity of the plant.

2. **Ammonia Limits** - The Service recommends that the agency implement the EPA 2009 Draft Ammonia Criteria in order to further minimize potential effects to the aquatic habitat.

   DEQ Response: The limits proposed in the draft permit are based upon the current regulatory requirements of Virginia Water Quality Standards, and the proposed permit is in compliance with all current regulatory requirements. The agency is required by the federal Clean Water Act to conduct a comprehensive review of the state water quality standards every three years (the "Triennial Review"). This review allows input from interested stakeholders, and like all regulatory changes must undergo the administrative processes required before final adoption. Once adopted, any more stringent water quality standard will be implemented into the permit upon reopening. However, in anticipation of the potential lower standard for ammonia, the Town of St. Paul is required to design the proposed treatment plant to achieve the potential lower ammonia effluent limitation.

B. **Virginia City Hybrid Energy Center (VCHEC)**

1. **Compliance with the 2011 Biological Opinion** – The Service requested that the recommendations of the 2011 Biological Opinion be incorporated into the VPDES permit requirements of the facility. Specifically, the service requested monthly chemical testing and monthly whole effluent toxicity testing, and recommended that the facility develop a "discharge operational plan" to limit the discharge from the operation to limit the discharge of contaminates of concern during low flow periods.

   DEQ Response: The staff reviewed the extensive chemical and whole effluent toxicity data submitted with the application for issuance of the permit, and has adopted a water quality based effluent limitation for any potential pollutant for which there is a reasonable potential to violate any of the numeric or narrative water quality standards of the receiving stream. Furthermore, the proposed permit includes additional chemical and whole effluent monitoring which is consistent with our regulatory requirements, and the Department is confident that the monitoring plan is sufficient to identify the variability of the effluent over the life of the permit. As we receive the results, the Department will evaluate the analyses with respect to the water quality standards, and will require modification of the permit should the data indicate additional effluent limitations are necessary.

   Although a discharge operational plan or other similar control requirement is also not included as a component of the proposed permit, the facility appears to be in compliance with that request given that it is currently operated in a manner to recycle and reuse as much of the potential wastewater as practicable, and to minimize its discharge. The current operation of the plant seldom results in a discharge to the diffuser; and so far, has a history of operating for months without a discharge.

2. **Levels of Radionuclide in the Effluent** – The Service requests that aquatic life limits be developed for radionuclide.

   DEQ Response: Virginia has no radionuclide water quality standards for aquatic life. The only standards for radionuclide apply as "human health criteria" which apply to public water supply waters. The discharge from the facility is in compliance with these standards. Given that any wasteload allocation developed for radionuclide would be calculated utilizing a 30Q10 value for stream flow (i.e. 41 MGD) the potential maximum in-stream waste concentration would be approximately 3%. Therefore, although the discharge itself may approach the drinking water criteria, an evaluation of the resulting potential in-stream discharge concentration does not indicate that there is a reasonable potential to violate the applicable water quality standards.

3. **Levels of Copper in the Effluent** – The Service recommended that the permit incorporate the more restrictive chronic waste load allocation for copper instead of the acute WLA cited in the initial draft permit.

   DEQ Response: The Department staff has re-evaluated the effluent limitations and concluded that an effluent limitation based upon the more restrictive chronic WLA is appropriate and provides for compliance with all standards, should continuous (i.e. greater than 4 day) discharges become necessary. Therefore, the permit has been changed in accordance with the comment.

4. **Data Inputs to Calculate Effluent Limits** – The Service requested that additional "wet-weather" monitoring of the effluent for arsenic, barium and selenium be conducted to complement the "dry weather" monitoring submitted with application. Additionally, the Service objected to the characterization of the wastewater sources at the site and the applicability of the 2010 EPA guidance regarding coal combustion residual impoundments, and requested additional effluent limitations and additional monitoring requirements.

   DEQ Response: The proposed permit includes quarterly monitoring of the effluent for the cited potential pollutants as well all other water quality standards pollutants. The monitoring is required until at least ten sets of results are collected. The proposed monitoring is anticipated to reflect any seasonal variability as well as any changes in concentration which may result from the additional placement of waste material over the life of the landfill. Therefore the monitoring will identify any of the potential pollutants which have a potential to contravene the water quality standards, including those cited in the comment.

   Furthermore, the EPA is currently in the process of adopting updated guidelines for a number of wastewater sources at steam electric power generation facilities which is anticipated to include leachate from coal combustion by-product landfills. The proposed rulemaking is currently in public comment phase of development, but has not been finalized. Therefore, these limitations are not included in the permit. However, should any new effluent guidelines be promulgated for

any waste stream identified at the site, the permit will be reopened and the requirements will be incorporated into the permit in accordance with Part I.B.1.

5. **Anti-backsliding** - The Service requested that the provisions the Town of St. Paul's industrial user permit (IUP) be incorporated into the effluent limitations for the VCHEC facility questioning that elimination of the provisions of the IUP would be considered "backsliding".

   DEQ Response: The IUP issued by the town are technology-based requirements taken from the new source performance standards of 40 CFR 423 (pretreatment standards) for indirect dischargers to municipal wastewater treatment systems. Since this proposed action will regulate the direct discharge into state waters, the pretreatment standards do not apply to this permit, and the proposed action does not contravene the anti-backsliding provisions of the regulation. Furthermore, because the potential pollutants cited in the IUP were evaluated with respect to the direct discharge requirements of the proposed permit, and the proposed permit is in compliance with all current federal effluent limitation guidelines and state water quality standards, the additional limitation of the existing IUP are not warranted.

6. **Quantification and Detection Limits** – The Service requested clarification on the "method detection level" (MDL) and "reporting level" (RL) included on a specific analysis (i.e. barium) included in the application, and also requested lower quantification levels for iron and zinc.

   DEQ Response: The Department requires tests be conducted with a quantification level specified in the permit in order to reliably determine compliance with a potential permit limit and/or compliance with the water quality standards of the receiving stream. The method detection limit is generally much lower than the quantification level or "reporting limit". In the case of barium, the staff did not take issue with the discrepancies in the RL and MDL cited in the tests because the most limiting potential wasteload allocation for barium (i.e. 6900 ug/l) is far higher than the MDL of the test (38 ug/l). Furthermore, the quantification levels for iron and zinc are sufficiently restrictive to measure compliance with both the water quality standards and the effluent limits in the permit. Therefore, no change is necessary in order to meet the regulatory requirements of the permit and water quality standards.

7. **Other** – The Service indicated their desire to receive routine reports, copies of analysis results and other similar documentation; and to be consulted for additional guidance or recommendations should the Department not implement the recommendations in their comment letter.

   DEQ Response: All reports, analysis results and other information pertaining to the permit are publically available, and the service may examine our records at any time. Specific requests for information may be directed to the regional office, but the Department does not "automatically" distribute these items to third parties. Additionally, the Department has fully considered the Service's recommendations, and has implemented the necessary provisions to ensure that the proposed permit meets all regulatory obligations.

We value the opinion of the U.S. Fish and Wildlife Service, and share its goals of protecting the aquatic life in the Clinch River, as with all other state waters in the Commonwealth. Both permits have been written to fully implement the regulatory requirements of our VPDES program (9 VAC25-31) and the state Water Quality Standards (9 VAC 25-260), and both are sufficiently restrictive to protect the aquatic life of the receiving stream. The permits also include provisions to address any future requirement necessitated by changes in federal rulemaking or deemed necessary by data produced by the ongoing monitoring programs.

It is the opinion of the Department that additional recommendations under the ESA which are beyond the scope of the DEQ regulations are solely the responsibility of the owners of these facilities, and we have forwarded the comments to each for their consideration and/or implementation.

If you have any questions, you may contact me at (276) 676-4816 or by email at mark.trent@deq.virginia.gov.

Sincerely,

Mark S. Trent
Water Permit Manager

cc: Margaret Byrne (margaret_byrne@fws.gov)
Fred Cunningham, DEQ-CO (Frederick.Cunningham@deq.virginia.gov)
Geoffrey A. Hensley, Dominion – VCHEC (geoffrey.a.hensley@dom.com)
Hubert K. Fletcher, Town of St. Paul (treasurer@stpaulva.org)

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY	**VPDES PERMITS** **Threatened and Endangered Species Coordination**
To: ☒ DGIF, Environmental Review Coordinator ☒ DCR ☒ USFWS, T/E Review Coordinator **From: Mark S. Trent, Water Permit Manager** **(mark.trent@deq.virginia.gov)** **DEQ Southwest Regional Office**	**Date Sent: 06-25-2013** **Permit Number: VA0026221 & VA0092746**
Facility Name: Town of St. Paul **Contact: Hubert K. Fletcher, Mayor** **Phone: 276 762-5297** **Address: St. Paul, VA** **Facility Name: Dominion Virginia Power** **Contact: Geoffrey Hensley** **(geoffrey.a.hensley@dom.com)** **Virginia City Hybrid Energy Center** **3425 Russell Creek Road** **Phone: (276) 762-2614**	**Location: St. Paul, VA** **Quadrangle: St. Paul, VA 7.5' Quadrangle** **Latitude/Longitude: N36 54' 02";W82 19' 05"** **Receiving Stream: Clinch River** **Receiving Stream Flow Statistics used for Permit:** **1Q10 21 MGD** **7Q10 26 MGD** **30Q5 41 MGD** **30Q10 34 MGD** **Harmonic Mean 167 MGD**
Effluent Characteristics and Max Daily Flow: Maximum Daily Flow: 1.2 MGD see referenced fact sheets for effluent Characteristics	**Species Search Results (or attach database report and map):** See attached list

NOTE: The following is a link to the ftp site which contains the applications, draft permits and draft fact sheets:

http://www.deq.virginia.gov/fileshare/wps/PERMIT/SWRO/St-Paul%20-%20Dominion/

VaFWIS Search Report Compiled on 6/25/2013, 11:31:41 AM

Help

Known or likely to occur within a **3 mile radius around point 36,54,02.0 82,19,05.0** in **167 Russell County, 195 Wise County, VA**

View Map of Site Location

524 Known or Likely Species ordered by Status Concern for Conservation (displaying first 64) (64 species with Status* or Tier I** or Tier II**)

BOVA Code	Status*	Tier**	Common Name	Scientific Name
050023	FESE	I	Bat, Indiana	Myotis sodalis
060169	FESE	I	Bean (pearlymussel), Cumberland	Villosa trabalis
060147	FESE	I	Bean, Purple	Villosa perpurpurea
060034	FESE	I	Blossom (pearlymussel), green	Epioblasma torulosa gubernaculum
060030	FESE	I	Combshell, Cumberlandian	Epioblasma brevidens
060023	FESE	I	Fanshell	Cyprogenia stegaria
060125	FESE	I	Monkeyface (pearlymussel), Appalachian	Quadrula sparsa
060031	FESE	I	Mussel, oyster	Epioblasma capsaeformis
060020	FESE	I	Pearlymussel, birdwing	Lemiox rimosus
060082	FESE	I	Pearlymussel, cracking	Hemistena lata
060024	FESE	I	Pearlymussel, dromedary	Dromus dromas
060051	FESE	I	Pigtoe, finerayed	Fusconaia cuneolus
060052	FESE	I	Pigtoe, shiny	Fusconaia cor
060122	FESE	I	Rabbitsfoot, rough	Quadrula cylindrica strigillata
050021	FESE	II	Bat, gray	Myotis grisescens
060146	FESE	II	Bean, Rayed	Villosa fabalis
060110	FESE	II	Mussel, sheepnose	Plethobasus cyphyus
060035	FESE	II	Snuffbox	Epioblasma triquetra
060021	FESE	II	Spectaclecase	Cumberlandia monodonta
010111	FTST	I	Chub, slender	Erimystax cahni
010331	FTST	I	Madtom, yellowfin	Noturus flavipinnis
040267	SE	I	Wren, Bewick's	Thryomanes bewickii
060006	SE	II	Floater, brook	Alasmidonta varicosa
060080	SE	II	Heelsplitter, Tennessee	Lasmigona holstonia
060139	FSSE	II	Lilliput, purple	Toxolasma lividus
060007	SE	II	Mussel, slippershell	Alasmidonta viridis
060174	FSSE	II	Pigtoe, pyramid	Pleurobema rubrum

Trent, Mark (DEQ)

From:	Aschenbach, Ernie (DGIF)
Sent:	Thursday, July 25, 2013 4:44 PM
To:	Daub, Elleanore (DEQ); Trent, Mark (DEQ); Shaheen, Clairise (DEQ); nhreview (DCR); Hypes, Rene (DCR); Hillman, Brett; susan_lingenfelser@fws.gov; Margaret Byrne
Cc:	ProjectReview (DGIF); Watson, Brian (DGIF); Cason, Gladys (DGIF); Pinder, Mike (DGIF); Kittrell, Bill (DGIF)
Subject:	ESSLog 25516; request for reissuance of the existing VPDES permit (VA0026221) for the Town of Saint Paul, Virginia Wastewater Treatment Plant, & new issuance of Individual VPDES permit (VA0092746) for the VCHEC on the Clinch River, at St. Paul, VA
Importance:	High

We received a single request from DEQ to review of the above-referenced reissuance of the existing VPDES permit (VA0026221) for the Town of Saint Paul, Virginia Wastewater Treatment Plant (WWTP), and the new issuance of an individual VPDES permit (VA0092746) for the Virginia City Hybrid Energy Center (VCHEC). Both permit applications are presented by DEQ as "re-issuances", based on the following history.

When VCHEC initially became operational, discharge from the facility became a component of the existing VPDES permit for the Saint Paul WWTP permit, under an Industrial User Permit (IUP) issued and regulated by the Town. On February 09, 2010 an Industrial User Permit (IUP 2012-01) was issued to Dominion (VCHEC) by the Town. This discharge permit allowed Dominion (VCHEC) to bypass the Wastewater Treatment Plant and discharge directly through the Town's diffuser into the Clinch River. According to DEQ, severing the discharge authorization into two individual permits must be done simultaneously, requiring the issuance date of the new permit for the Dominion facility to coincide with the reissuance of the existing permit for the St. Paul WWTP.

Reissuance of VPDES permit (VA0026221) for the Town of Saint Paul, Virginia Wastewater Treatment Plant: According to the previous VPDES permit (VA0026221) reissuance for the Towns Wastewater Treatment Plant, the design capacity requested 0.9 Million Gallons per Day (MGD), including Dominion (VCHEC) discharges. The Town of St. Paul, Virginia Wastewater Treatment Plant (VPDES permit VA0026221) uses ultraviolet disinfection with post treatment aeration.

According to the Town's February 4, 2013 reissuance application (VPDES permit VA0026221), the Town of St. Paul, Virginia currently operates a Lagoon type Wastewater Treatment Plant that is rated at 0.4 Million Gallons per Day (MGD). The Town is proposing to license a 0.5 MGD Membrane Bioreactor (MBR) Plant. This plant will be designed with the capability to expand to 0.75 MGD with minimal effort. The proposed plant will be owned and operated by the Town of St. Paul, and function as a regional treatment facility and receive sewage from Castlewood Water Sewage Authority and Wise County Public Service Authority. The Town has decided to construct a MBR Treatment Plant with a capacity of 0.5 MGD, because Dominion has applied for an individual VPDES Permit (VA0092746) for VCHEC and will no longer discharge Industrial wastewater to the Towns Wastewater Treatment Plant. The Town Wastewater Treatment Plant will no longer have sufficient capacity dedicated to VCHEC for Industrial Wastewater. The Town will no longer be responsible for the Dominion (VCHEC) industrial discharge, under the reissued VPDES (VA0026221) and the VCHEC Industrial User Permit (IUP 2012-01) will no longer be valid. Included in the application (VPDES permit VA0026221) reissuance, is Attachment F is the United States Department of the Interior, Fish and Wildlife Services Biological/Conference opinion on the St. Paul, Virginia Wastewater Treatment Plant Expansion, Project # 2010-1-0043. Also included in this application are the results of

the Mussel Assemblage Monitoring and Juvenile Mussel Deployment studies (Attachment G) and the Yellowfin Madtom Monitoring report (Attachment H).

New issuance of an individual VPDES permit (VA0092746) for the Virginia City Hybrid Energy Center (VCHEC): The Virginia City Hybrid Energy Center (VCHEC) is a 585 Mega-Watt coal fired steam electric generation facility located near St. Paul, Virginia. The operation consists of a power generation facility, materials handling areas (i.e. coal, biomass products and limestone) and a solid waste management facility (i.e. ash landfill). The facility is designed to use run-of mine coal, biomass (wood products) and reclaimed waste coal or "gob" as fuel sources to operate steam turbines which power generators that produce electricity. The furnaces use circulating fluidized bed technology where a sulfur absorbing chemical (i.e. ground limestone) is incorporated in the combustion chamber to meet emission standards without using external scrubbers. The facility also uses air cooled condensers to cool the return boiler water, and a small cooling tower to cool equipment in the boiler building. The air cooled condensers were selected during the design phase of the plant to minimize water usage and to minimize potential wastewater discharges at the facility. Additionally, extensive wastewater reuse is incorporated in the design to further minimize water usage and minimize potential discharges. DEQ regulations (9 VAC 25-260) establish water quality standards intended to protect all state waters for recreation, wildlife, the growth of a balanced population of aquatic life, and the production of edible and marketable fish and shellfish. The standards contain numeric limits for specific physical, chemical, biological or radiological characteristics of water. They also contain general and specific descriptions, because not all requirements for water quality protection can be numerically defined. These statements and numeric limits describe water quality necessary to meet and maintain uses such as swimming and other water-based recreation, public water supply, and the propagation and growth of aquatic life. The segment to which this facility discharges (VAS-P09R – Clinch River) is defined in 9 VAC 25-260-500 as Clinch River Section 2a and is classified as public water supply waters because the location is upstream of the public water supply intake for the Wise County PSA water treatment plant. Also, the discharge location at river mile 253.22 is downstream of the segment which has special water quality criteria for copper (i.e. special standard "X" applies to the Clinch River between river mile 255.4 and river mile 268). Included in this application are the specific water quality standards for all of the 132 potential numeric pollutants that were determined using a DEQ developed spreadsheet and the results reported as Fact Sheet (Attachment D).

The application (p. 15) includes a table of potential pollutants which have been identified in the discharge either from the analysis of the combined wastewater or from the analysis of the VCHEC discharge, or are otherwise anticipated to be a component of either wastewater stream. Ambient conditions, assumptions (Table A. Calculated Assumptions), the anticipated "worst-case" stream flows, and combined maximum daily effluent flows were used to develop standards for these pollutants (Table B. Numeric Water Quality Standards). This stream segment is also cited in 9 VAC-25-260-110 as waters subject to a halogen ban due to the presence of a number of endangered species of mussels. Chlorine and other halogen compounds such as bromine, bromine chloride, hypochlorite and chlorine dioxide are prohibited for use for disinfection and biocide applications except for discharges who intermittently chlorinate. Dischargers who intermittently chlorinate (i.e. < 2 hours in any 8 hr period) are required to install equipment or employ procedures to ensure that the facility meets the numeric limitations of 9VAC250-260-140B. Chlorine usage is limited to the "clean-in-place" process of the raw water treatment system, and complies with the intermittent use exception to the halogen ban.

Analysis of the Ammonia limitations is included in the companion St. Paul permit because ammonia and other nitrogen compounds are associated with treatment of domestic waste. Its presence was not detected in the discharge from the VCHEC facility, and no limits are imposed by this proposed permit.

Total Residual Chlorine (TRC) – The VCHEC facility uses chlorine in their raw water treatment process which produces water for the cooling tower make-up water and boiler make-up water. Chlorine is not used in the wastewater treatment process, is not anticipated to be a component of the ultimate discharge, and the analysis results of the discharge confirm that no detectable levels of TRC are present. Because it is a component of the federal ELG's and because it is used onsite for disinfection of the raw water, it is included in the evaluation. However, both the acute and chronic Waste Load Allocations (WLA's), 88 ug/l and 62 ug/l respectively, are below the limits of detection (100 ug/l). The statistical analysis was performed using arbitrary values above the quantification limit. This results in a proposed effluent limitation of 88 ug/l monthly average and 88 ug/l daily maximum. This level is numerically below the limits of detection but is included in the permit.

DGIF comments: Based on DEQ's explanation of the inter-related nature of these facilities, DGIF is providing the following recommendations for both VPDES permits as a single response letter. We understand the necessity for the new issuance of an individual VPDES permit (VA0092746) for the Virginia City Hybrid Energy Center (VCHEC) to coincide with the reissuance of an updated permit for VPDES permit (VA0026221) reissuance for the Towns Wastewater Treatment Plant. However, DGIF considers the removal of the VCHEC Industrial discharge to the existing Town of St. Paul facility, reduced discharge design capacity of that facility, and change in treatment process requiring modifications to the existing facility as substantive changes to the existing VPDES permit (VA0026221) more closely meeting the characteristics of a new VDPES issuance, under the Memorandum of Understanding (MOU) for VPDES permit review. We appreciate when DEQ staff provide our staff the maximum amount of time possible for our review and preparation of comments, whenever possible. In retrospect, completion of a thorough review of two highly complex permit issuances located on designated Threatened and Endangered (T&E) species waters could have benefited from DEQ providing us more time for review by forwarding the application materials as soon as they became available (e.g., the date stamp on the reissuance application for (VPDES permit VA0026221), the Town of St. Paul, Virginia suggests materials were received February 4, 2013).

According to our records, the Clinch River is a designated Threatened and Endangered (T&E) species water for a number of state and federally listed species:

within a **2 mile radius around point 36,54,19.3 -82,18,39.4**
in **167 Russell County, 195 Wise County, VA**

538 Known or Likely Species ordered by Status Concern for Conservation
(displaying first 64) (64 species with Status* or Tier I** or Tier II**)

BOVA Code	Status*	Tier**	Common Name	Scientific Name	Confirmed	Database(s)
010333	FESE	I	Darter, duskytail	Etheostoma percnurum	Yes	DCRNH
050023	FESE	I	Bat, Indiana	Myotis sodalis		BOVA
060169	FESE	I	Bean (pearlymussel), Cumberland	Villosa trabalis	Yes	BOVA,TEWaters,Habitat
060147	FESE	I	Bean, Purple	Villosa perpurpurea	Yes	BOVA,TEWaters,Habitat,DCRNH
060034	FESE	I	Blossom (pearlymussel), green	Epioblasma torulosa gubernaculum		Habitat
060030	FESE	I	Combshell, Cumberlandian	Epioblasma brevidens	Yes	Habitat,DCRNH
060023	FESE	I	Fanshell	Cyprogenia stegaria	Yes	Habitat,DCRNH
060125	FESE	I	Monkeyface (pearlymussel), Appalachian	Quadrula sparsa	Yes	TEWaters,Habitat
060031	FESE	I	Mussel, oyster	Epioblasma capsaeformis	Yes	BOVA,TEWaters,Habitat,DCRNH
060020	FESE	I	Pearlymussel, birdwing	Lemiox rimosus	Yes	BOVA,TEWaters,Habitat,SppObs,DCRNH
060082	FESE	I	Pearlymussel, cracking	Hemistena lata	Yes	BOVA,Habitat,DCRNH

060094	FESE	I	Pearlymussel, littlewing	Pegias fabula	Yes	DCRNH
060051	FESE	I	Pigtoe, finerayed	Fusconaia cuneolus	Yes	BOVA,TEWaters,Habitat,SppObs,DCRNH
060052	FESE	I	Pigtoe, shiny	Fusconaia cor	Yes	BOVA,TEWaters,Habitat,SppObs,DCRNH
060122	FESE	I	Rabbitsfoot, rough	Quadrula cylindrica strigillata	Yes	TEWaters,Habitat,SppObs,DCRNH
060146	FESE	II	Bean, Rayed	Villosa fabalis		BOVA
060110	FESE	II	Mussel, sheepnose	Plethobasus cyphyus	Yes	Habitat,DCRNH
060035	FESE	II	Snuffbox	Epioblasma triquetra	Yes	Habitat,DCRNH
060021	FESE	II	Spectaclecase	Cumberlandia monodonta	Yes	TEWaters,Habitat,DCRNH
010111	FTST	I	Chub, slender	Erimystax cahni	Yes	TEWaters,Habitat
010331	FTST	I	Madtom, yellowfin	Noturus flavipinnis	Yes	BOVA,TEWaters,Habitat,SppObs,DCRNH
040267	SE	I	Wren, Bewick's	Thryomanes bewickii		BOVA
060006	SE	II	Floater, brook	Alasmidonta varicosa		BOVA
060080	SE	II	Heelsplitter, Tennessee	Lasmigona holstonia		BOVA,Habitat
060139	FSSE	II	Lilliput, purple	Toxolasma lividus		BOVA
060007	SE	II	Mussel, slippershell	Alasmidonta viridis		Habitat
060174	FSSE	II	Pigtoe, pyramid	Pleurobema rubrum	Yes	BOVA,DCRNH
060168	SE	IV	Deertoe	Truncilla truncata	Yes	TEWaters,Habitat,SppObs,DCRNH
060027	SE	IV	Elephantear	Elliptio crassidens	Yes	Habitat,SppObs,DCRNH
040096	ST	I	Falcon, peregrine	Falco peregrinus		BOVA
040293	ST	I	Shrike, loggerhead	Lanius ludovicianus		BOVA
010342	ST	II	Darter, sickle	Percina williamsi	Yes	BOVA,TEWaters,Habitat,DCRNH
060083	FPST	II	Pearlymussel, slabside	Lexingtonia dolabelloides	Yes	TEWaters,Habitat,SppObs,DCRNH
010076	ST	III	Shiner, emerald	Notropis atherinoides	Yes	BOVA,TEWaters,Habitat
010335	ST	III	Shiner, steelcolor	Cyprinella whipplei	Yes	BOVA,TEWaters,Habitat
060069	FSST	III	Riversnail, spiny	Io fluvialis	Yes	BOVA,TEWaters,Habitat,SppObs,DCRNH
060086	ST	III	Sandshell, black	Ligumia recta	Yes	TEWaters,Habitat,SppObs,DCRNH
060163	ST	IV	Papershell, fragile	Leptodea fragilis	Yes	BOVA,TEWaters,Habitat,SppObs,DCRNH
060124	ST	IV	Pimpleback	Quadrula pustulosa pustulosa	Yes	BOVA,Habitat,DCRNH
040292	ST		Shrike, migrant loggerhead	Lanius ludovicianus migrans		BOVA
060121	FP	II	Kidneyshell, fluted	Ptychobranchus subtentum	Yes	BOVA,Habitat,SppObs,DCRNH
010343	FS	I	Darter, ashy	Etheostoma cinereum	Yes	BOVA,Habitat,SppObs,DCRNH
100248	FS	I	Fritillary, regal	Speyeria idalia idalia		BOVA
010341	FS	II	Logperch, blotchside	Percina burtoni	Yes	BOVA,Habitat,SppObs,DCRNH
040093	FS	II	Eagle, bald	Haliaeetus leucocephalus		BOVA
060050	FS	II	Pigtoe, Tennessee	Fusconaia barnesiana	Yes	BOVA,Habitat,SppObs,DCRNH
080101	FS	II	Clubtail, Cherokee	Gomphus consanguis	Yes	Habitat,DCRNH
010428	FS	III	Sculpin, Clinch	Cottus sp. 4	Yes	SppObs
100001	FS	IV	fritillary, Diana	Speyeria diana		BOVA
020020	CC	II	Hellbender, eastern	Cryptobranchus alleganiensis alleganiensis	Yes	BOVA,DCRNH
030012	CC	IV	Rattlesnake, timber	Crotalus horridus		BOVA
040225		I	Sapsucker, yellow-bellied	Sphyrapicus varius		BOVA
040319		I	Warbler, black-throated green	Dendroica virens		BOVA
040306		I	Warbler, golden-winged	Vermivora chrysoptera		BOVA
010075		II	Shiner, popeye	Notropis ariommus	Yes	BOVA,Habitat,SppObs,DCRNH
020011		II	Frog, mountain chorus	Pseudacris brachyphona		BOVA,Habitat
020030		II	Salamander, green	Aneides aeneus		BOVA

020081		II	Salamander, southern zigzag	Plethodon ventralis		BOVA
040052		II	Duck, American black	Anas rubripes		BOVA
040213		II	Owl, northern saw-whet	Aegolius acadicus		BOVA
040320		II	Warbler, cerulean	Dendroica cerulea		BOVA
040304		II	Warbler, Swainson's	Limnothlypis swainsonii		BOVA
040266		II	Wren, winter	Troglodytes troglodytes		BOVA
080221		II	Clubtail, skillet	Gomphus ventricosus	Yes	DCRNH

To view **All 538 species** View 538

* FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; FC=Federal Candidate; FS=Federal Species of Concern; CC=Collection Concern

** I=VA Wildlife Action Plan - Tier I - Critical Conservation Need; II=VA Wildlife Action Plan - Tier II - Very High Conservation Need; III=VA Wildlife Action Plan - Tier III - High Conservation Need; IV=VA Wildlife Action Plan - Tier IV - Moderate Conservation Need

Bat Colonies or Hibernacula: **Not Known**

Anadromous Fish Use Streams
N/A

Colonial Water Bird Survey
N/A

Threatened and Endangered Waters
(2 Reaches)

Stream Name	T&E Waters Species					View Map
	Highest TE*	BOVA Code, Status*, Tier**, Common & Scientific Name				
Clinch River (06010205)	FESE	010076	ST	III	Shiner, emerald	Notropis atherinoides	Yes
		010111	FTST	I	Chub, slender	Erimystax cahni	
		010331	FTST	I	Madtom, yellowfin	Noturus flavipinnis	
		010332		III	Darter, Tippecanoe	Etheostoma tippecanoe	
		010335	ST	III	Shiner, steelcolor	Cyprinella whipplei	
		010342	ST	II	Darter, sickle	Percina williamsi	
		060020	FESE	I	Pearlymussel, birdwing	Lemiox rimosus	
		060021	FESE	II	Spectaclecase	Cumberlandia monodonta	
		060031	FESE	I	Mussel, oyster	Epioblasma capsaeformis	
		060051	FESE	I	Pigtoe, finerayed	Fusconaia cuneolus	
		060052	FESE	I	Pigtoe, shiny	Fusconaia cor	
		060069	FSST	III	Riversnail, spiny	Io fluvialis	
		060083	FPST	II	Pearlymussel, slabside	Lexingtonia dolabelloides	
		060086	ST	III	Sandshell, black	Ligumia recta	
		060122	FESE	I	Rabbitsfoot, rough	Quadrula cylindrica strigillata	
		060125	FESE	I	Monkeyface (pearlymussel), Appalachian	Quadrula sparsa	
		060147	FESE	I	Bean, Purple	Villosa perpurpurea	
		060163	ST	IV	Papershell, fragile	Leptodea fragilis	
		060168	SE	IV	Deertoe	Truncilla truncata	

		060169	FESE	I	Bean (pearlymussel), Cumberland	Villosa trabalis	
Clinch River (06010205)	FESE	010076	ST	III	Shiner, emerald	Notropis atherinoides	Yes
		010111	FTST	I	Chub, slender	Erimystax cahni	
		010332		III	Darter, Tippecanoe	Etheostoma tippecanoe	
		010335	ST	III	Shiner, steelcolor	Cyprinella whipplei	
		010342	ST	II	Darter, sickle	Percina williamsi	
		060020	FESE	I	Pearlymussel, birdwing	Lemiox rimosus	
		060021	FESE	II	Spectaclecase	Cumberlandia monodonta	
		060031	FESE	I	Mussel, oyster	Epioblasma capsaeformis	
		060051	FESE	I	Pigtoe, finerayed	Fusconaia cuneolus	
		060052	FESE	I	Pigtoe, shiny	Fusconaia cor	
		060069	FSST	III	Riversnail, spiny	Io fluvialis	
		060083	FPST	II	Pearlymussel, slabside	Lexingtonia dolabelloides	
		060086	ST	III	Sandshell, black	Ligumia recta	
		060122	FESE	I	Rabbitsfoot, rough	Quadrula cylindrica strigillata	
		060125	FESE	I	Monkeyface (pearlymussel), Appalachian	Quadrula sparsa	
		060147	FESE	I	Bean, Purple	Villosa perpurpurea	
		060163	ST	IV	Papershell, fragile	Leptodea fragilis	
		060168	SE	IV	Deertoe	Truncilla truncata	
		060169	FESE	I	Bean (pearlymussel), Cumberland	Villosa trabalis	

Managed Trout Streams
N/A

Bald Eagle Concentration Areas and Roosts
N/A

Bald Eagle Nests
N/A

Habitat Predicted for Aquatic WAP Tier I & II Species
(15 Reaches)

Stream Name	Highest TE*	Tier Species: BOVA Code, Status*, Tier**, Common & Scientific Name					View Map
Lick Creek (60102051)	FCSE	010341	FS	II	Logperch, blotchside	Percina burtoni	Yes
		060007	SE	II	Mussel, slippershell	Alasmidonta viridis	
		060050	FS	II	Pigtoe, Tennessee	Fusconaia barnesiana	
		060121	FP	II	Kidneyshell, fluted	Ptychobranchus subtentum	
		080101	FS	II	Clubtail, Cherokee	Gomphus consanguis	
Lick Creek (60102051)	FCSE	060050	FS	II	Pigtoe, Tennessee	Fusconaia barnesiana	Yes
		060080	SE	II	Heelsplitter, Tennessee	Lasmigona holstonia	
		060121	FP	II	Kidneyshell, fluted	Ptychobranchus subtentum	

		080101	FS	II	Clubtail, Cherokee	Gomphus consanguis	
Clinch River (60102051)	FESE	010075		II	Shiner, popeye	Notropis ariommus	Yes
		010076	ST	III	Shiner, emerald	Notropis atherinoides	
		010111	FTST	I	Chub, slender	Erimystax cahni	
		010331	FTST	I	Madtom, yellowfin	Noturus flavipinnis	
		010332		III	Darter, Tippecanoe	Etheostoma tippecanoe	
		010335	ST	III	Shiner, steelcolor	Cyprinella whipplei	
		010341	FS	II	Logperch, blotchside	Percina burtoni	
		010342	ST	II	Darter, sickle	Percina williamsi	
		010343	FS	I	Darter, ashy	Etheostoma cinereum	
		060020	FESE	I	Pearlymussel, birdwing	Lemiox rimosus	
		060021	FESE	II	Spectaclecase	Cumberlandia monodonta	
		060023	FESE	I	Fanshell	Cyprogenia stegaria	
		060027	SE	IV	Elephantear	Elliptio crassidens	
		060030	FESE	I	Combshell, Cumberlandian	Epioblasma brevidens	
		060031	FESE	I	Mussel, oyster	Epioblasma capsaeformis	
		060034	FESE	I	Blossom (pearlymussel), green	Epioblasma torulosa gubernaculum	
		060035	FESE	II	Snuffbox	Epioblasma triquetra	
		060050	FS	II	Pigtoe, Tennessee	Fusconaia barnesiana	
		060051	FESE	I	Pigtoe, finerayed	Fusconaia cuneolus	
		060052	FESE	I	Pigtoe, shiny	Fusconaia cor	
		060069	FSST	III	Riversnail, spiny	Io fluvialis	
		060082	FESE	I	Pearlymussel, cracking	Hemistena lata	
		060083	FPST	II	Pearlymussel, slabside	Lexingtonia dolabelloides	
		060086	ST	III	Sandshell, black	Ligumia recta	
		060110	FESE	II	Mussel, sheepnose	Plethobasus cyphyus	
		060121	FP	II	Kidneyshell, fluted	Ptychobranchus subtentum	
		060122	FESE	I	Rabbitsfoot, rough	Quadrula cylindrica strigillata	
		060124	ST	IV	Pimpleback	Quadrula pustulosa pustulosa	
		060125	FESE	I	Monkeyface (pearlymussel), Appalachian	Quadrula sparsa	
		060147	FESE	I	Bean, Purple	Villosa perpurpurea	
		060163	ST	IV	Papershell, fragile	Leptodea fragilis	
		060168	SE	IV	Deertoe	Truncilla truncata	
		060169	FESE	I	Bean (pearlymussel), Cumberland	Villosa trabalis	
		080101	FS	II	Clubtail, Cherokee	Gomphus consanguis	
Clinch River (60102051)	FESE	010075		II	Shiner, popeye	Notropis ariommus	Yes
		010076	ST	III	Shiner, emerald	Notropis atherinoides	

		010111	FTST	I	Chub, slender	Erimystax cahni	
		010331	FTST	I	Madtom, yellowfin	Noturus flavipinnis	
		010332		III	Darter, Tippecanoe	Etheostoma tippecanoe	
		010335	ST	III	Shiner, steelcolor	Cyprinella whipplei	
		010341	FS	II	Logperch, blotchside	Percina burtoni	
		010342	ST	II	Darter, sickle	Percina williamsi	
		060020	FESE	I	Pearlymussel, birdwing	Lemiox rimosus	
		060021	FESE	II	Spectaclecase	Cumberlandia monodonta	
		060023	FESE	I	Fanshell	Cyprogenia stegaria	
		060027	SE	IV	Elephantear	Elliptio crassidens	
		060030	FESE	I	Combshell, Cumberlandian	Epioblasma brevidens	
		060031	FESE	I	Mussel, oyster	Epioblasma capsaeformis	
		060034	FESE	I	Blossom (pearlymussel), green	Epioblasma torulosa gubernaculum	
		060035	FESE	II	Snuffbox	Epioblasma triquetra	
		060050	FS	II	Pigtoe, Tennessee	Fusconaia barnesiana	
		060051	FESE	I	Pigtoe, finerayed	Fusconaia cuneolus	
		060052	FESE	I	Pigtoe, shiny	Fusconaia cor	
		060069	FSST	III	Riversnail, spiny	Io fluvialis	
		060082	FESE	I	Pearlymussel, cracking	Hemistena lata	
		060083	FPST	II	Pearlymussel, slabside	Lexingtonia dolabelloides	
		060086	ST	III	Sandshell, black	Ligumia recta	
		060110	FESE	II	Mussel, sheepnose	Plethobasus cyphyus	
		060121	FP	II	Kidneyshell, fluted	Ptychobranchus subtentum	
		060122	FESE	I	Rabbitsfoot, rough	Quadrula cylindrica strigillata	
		060124	ST	IV	Pimpleback	Quadrula pustulosa pustulosa	
		060125	FESE	I	Monkeyface (pearlymussel), Appalachian	Quadrula sparsa	
		060147	FESE	I	Bean, Purple	Villosa perpurpurea	
		060163	ST	IV	Papershell, fragile	Leptodea fragilis	
		060168	SE	IV	Deertoe	Truncilla truncata	
		060169	FESE	I	Bean (pearlymussel), Cumberland	Villosa trabalis	
		080101	FS	II	Clubtail, Cherokee	Gomphus consanguis	
Clinch River (60102051)	FESE	010075		II	Shiner, popeye	Notropis ariommus	Yes
		010076	ST	III	Shiner, emerald	Notropis atherinoides	
		010111	FTST	I	Chub, slender	Erimystax cahni	
		010331	FTST	I	Madtom, yellowfin	Noturus flavipinnis	
		010332		III	Darter, Tippecanoe	Etheostoma tippecanoe	
		010335	ST	III	Shiner, steelcolor	Cyprinella whipplei	

		010341	FS	II	Logperch, blotchside	Percina burtoni		
		010342	ST	II	Darter, sickle	Percina williamsi		
		060020	FESE	I	Pearlymussel, birdwing	Lemiox rimosus		
		060021	FESE	II	Spectaclecase	Cumberlandia monodonta		
		060023	FESE	I	Fanshell	Cyprogenia stegaria		
		060027	SE	IV	Elephantear	Elliptio crassidens		
		060030	FESE	I	Combshell, Cumberlandian	Epioblasma brevidens		
		060031	FESE	I	Mussel, oyster	Epioblasma capsaeformis		
		060034	FESE	I	Blossom (pearlymussel), green	Epioblasma torulosa gubernaculum		
		060050	FS	II	Pigtoe, Tennessee	Fusconaia barnesiana		
		060051	FESE	I	Pigtoe, finerayed	Fusconaia cuneolus		
		060052	FESE	I	Pigtoe, shiny	Fusconaia cor		
		060069	FSST	III	Riversnail, spiny	Io fluvialis		
		060082	FESE	I	Pearlymussel, cracking	Hemistena lata		
		060083	FPST	II	Pearlymussel, slabside	Lexingtonia dolabelloides		
		060086	ST	III	Sandshell, black	Ligumia recta		
		060110	FESE	II	Mussel, sheepnose	Plethobasus cyphyus		
		060121	FP	II	Kidneyshell, fluted	Ptychobranchus subtentum		
		060122	FESE	I	Rabbitsfoot, rough	Quadrula cylindrica strigillata		
		060125	FESE	I	Monkeyface (pearlymussel), Appalachian	Quadrula sparsa		
		060147	FESE	I	Bean, Purple	Villosa perpurpurea		
		060163	ST	IV	Papershell, fragile	Leptodea fragilis		
		060168	SE	IV	Deertoe	Truncilla truncata		
		060169	FESE	I	Bean (pearlymussel), Cumberland	Villosa trabalis		
		080101	FS	II	Clubtail, Cherokee	Gomphus consanguis		
(60102051)	FS	080101	FS	II	Clubtail, Cherokee	Gomphus consanguis		Yes
Big Spring Branch (60102051)	FS	060050	FS	II	Pigtoe, Tennessee	Fusconaia barnesiana		Yes
		080101	FS	II	Clubtail, Cherokee	Gomphus consanguis		
Robinette Branch (60102051)	FS	080101	FS	II	Clubtail, Cherokee	Gomphus consanguis		Yes
Russell Creek (60102051)	FS	060050	FS	II	Pigtoe, Tennessee	Fusconaia barnesiana		Yes
		080101	FS	II	Clubtail, Cherokee	Gomphus consanguis		
(60102051)	FSSE	060050	FS	II	Pigtoe, Tennessee	Fusconaia barnesiana		Yes
		060080	SE	II	Heelsplitter, Tennessee	Lasmigona holstonia		
Big Spring Branch (60102051)	FSSE	060050	FS	II	Pigtoe, Tennessee	Fusconaia barnesiana		Yes
		060080	SE	II	Heelsplitter, Tennessee	Lasmigona holstonia		
		080101	FS	II	Clubtail, Cherokee	Gomphus consanguis		

Castle Run (60102051)	FSSE	060080	SE	II	Heelsplitter, Tennessee	Lasmigona holstonia		Yes
		080101	FS	II	Clubtail, Cherokee	Gomphus consanguis		
Honey Branch (60102051)	FSSE	060050	FS	II	Pigtoe, Tennessee	Fusconaia barnesiana		Yes
		060080	SE	II	Heelsplitter, Tennessee	Lasmigona holstonia		
		080101	FS	II	Clubtail, Cherokee	Gomphus consanguis		
Meade Creek (60102051)	FSSE	060050	FS	II	Pigtoe, Tennessee	Fusconaia barnesiana		Yes
		060080	SE	II	Heelsplitter, Tennessee	Lasmigona holstonia		
Castle Run (60102051)	SE	060080	SE	II	Heelsplitter, Tennessee	Lasmigona holstonia		Yes

Habitat Predicted for Terrestrial WAP Tier I & II Species

BOVA Code	Status*	Tier**	Common Name	Scientific Name	View Map
020011		II	Frog, mountain chorus	Pseudacris brachyphona	Yes

This project is located within 2 miles of a documented occurrence of a state or federal threatened or endangered plant or insect species and/or other Natural Heritage coordination species. Therefore, we recommend and support coordination with VDCR-DNH regarding the protection of these resources. We also recommend contacting the USFWS regarding all federally listed species.

These species are also addressed in the United States Fish and Wildlife Service (USFWS) May 28, 2011 Biological/Conference Opinion (BCO), and in two July 25, 2013, USFWS letters to DEQ regarding these two permits, respectively. We recommend continued adherence to the terms and conditions outlined in the BCO, including but not limited to monitoring of effluent discharge and reporting, and associated studies.

We support the continued use of ultraviolet (UV) disinfection rather than chlorination disinfection. If chlorination becomes necessary and is used, we recommend dechlorination, prior to discharge. Regarding the proposed EPA ammonia limits described by the USFWS, provided the project adheres to the effluent limitations and monitoring requirements specified in the permit and addresses the concerns identified by the USFWS and DCR-DNH, we do not anticipate the issuance of these two permits to result in adverse impact to designated T&E species waters or their associated species. We look forward to receiving updates of your continued coordination with the USFWS and DCR-DNH to resolve their concerns.

Thank you for the opportunity to provide comments. Please call me if you have any questions.

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